

Retrolisthesis and anterolisthesis of degenerative lumbar spine: Their different contribution in sagittal alignment

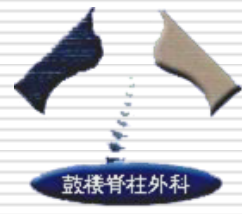
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Compensatory mechanism

Reduction of TK

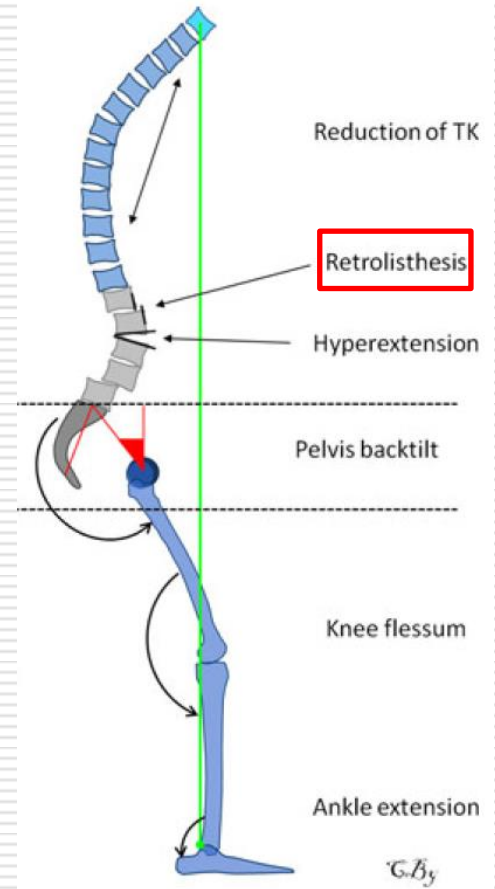
Hyperextension of adjacent segments

Retrolisthesis

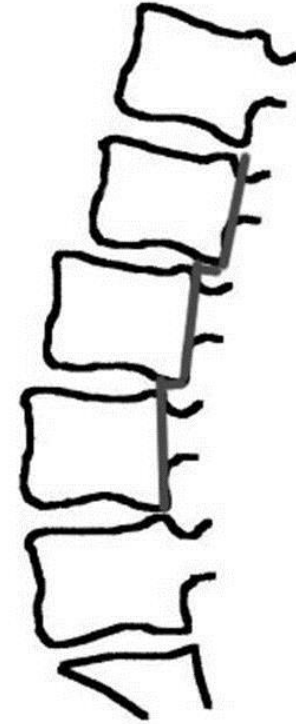
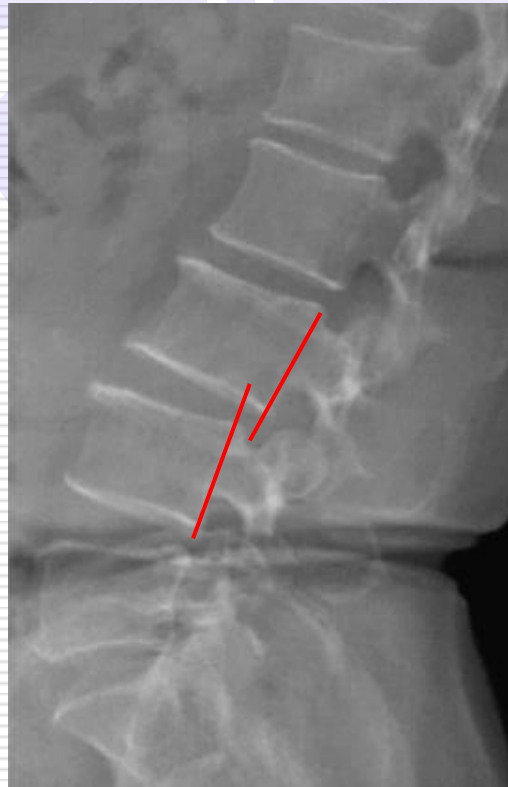
Pelvic retroversion

Knee flexion

Ankle extension



Retrolisthesis



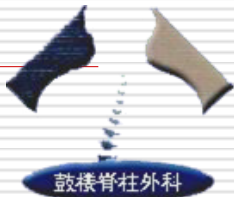
- The backwards slippage of one vertebral body on another
- Severe spinal degeneration
- Sagittal mechanism



Sp

Objective

- To compare sagittal alignment between anterolisthesis and retrolisthesis, as well as to elucidate their **different contribution in sagittal balance.**



Inclusion and Exclusion criteria

Inclusion criteria:

- Age > 45 yrs
- With Long-cassette standing upright radiographs
- Retrolisthesis > 3mm
- Anterolisthesis: > 5%, < 50%

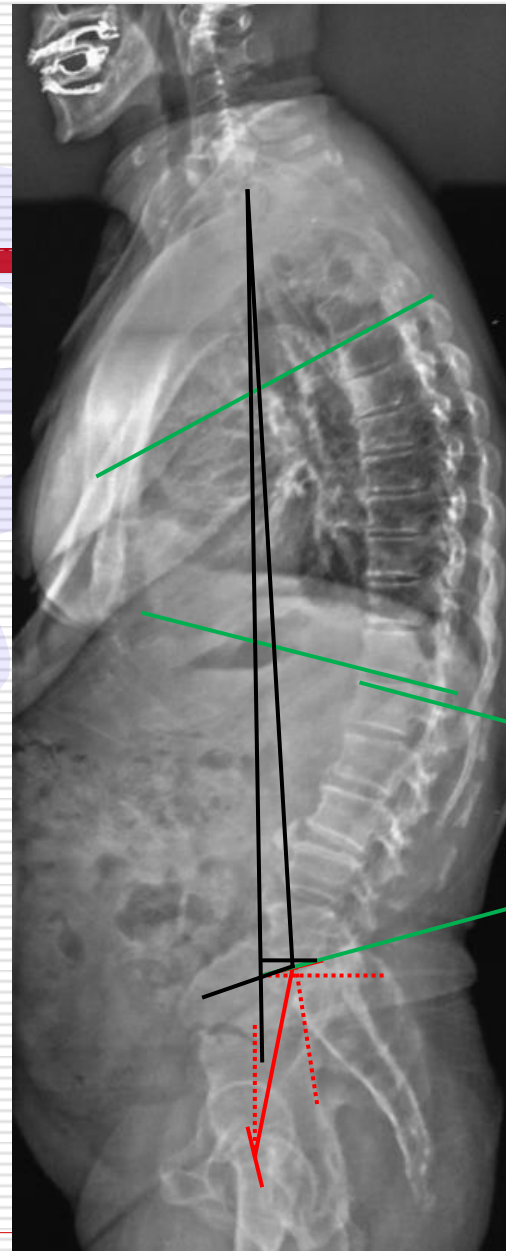
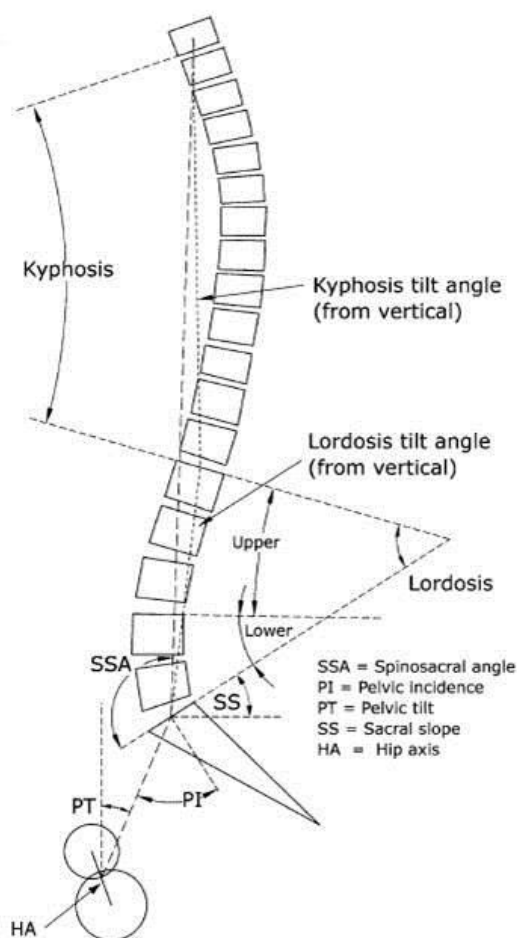
Exclusion criteria:

- Combined anterolisthesis and retrolisthesis
- Isthmic spondylolisthesis
- Idiopathic or congenital or neuromuscular scoliosis
- Spinal tumor
- sagittal imbalance due to compressive fractures



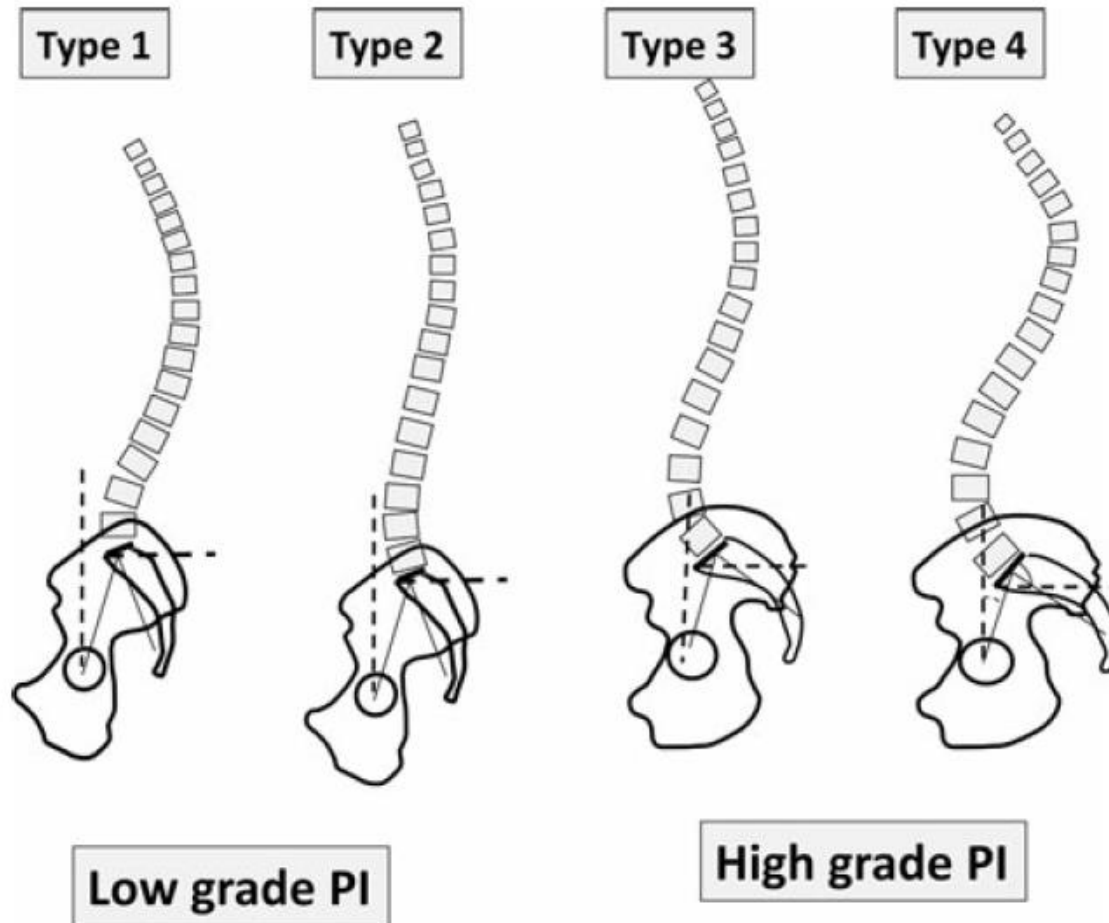
Methods

- TK
- LL
- SVA
- SSA
- PI
- PT
- SS



Sergides, I. G. et al. Lumbo-pelvic lordosis and the pelvic radius technique in the assessment of spinal sagittal balance: strengths and caveats. Eur Spine J, 20 Suppl 5, 591-601

Methods



Low PI

Type 1: $SS < 35^\circ$, long kyphosis, apex of LL close to L5

Type 2: $SS < 35^\circ$, flat back

High PI

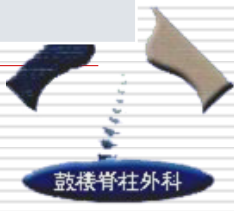
Type 3: $35^\circ < SS < 45^\circ$, LL balanced between 2 arches

Type 4: $SS > 45^\circ$, increased LL

Results

Table 1: Comparison of the spino-pelvic parameters

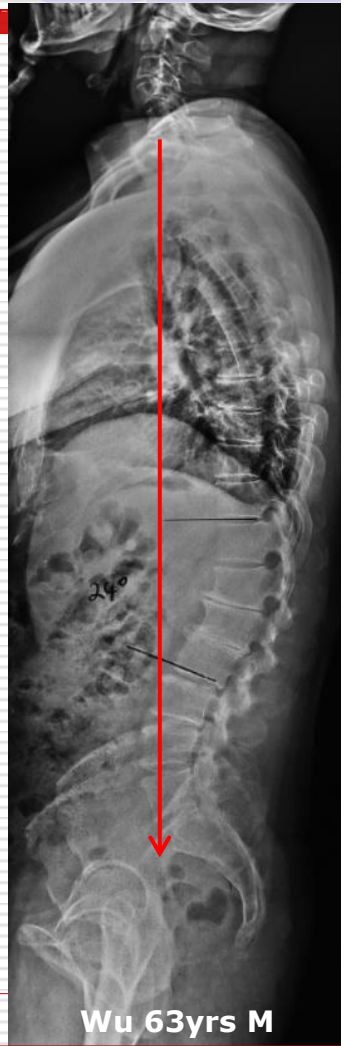
	Retrolisthesis	Anterolisthesis	p value
TK	20.86 ± 16.38	22.12 ± 14.35	0.919
LL	31.56 ± 17.49	43.40 ± 13.67	0.016
PI	40.28 ± 13.19	57.24 ± 9.63	<0.001
PT	20.69 ± 9.01	22.28 ± 6.94	0.362
SS	19.59 ± 11.54	34.96 ± 7.26	<0.001
SVA	15.35 ± 44.31	48.16 ± 32.95	0.032
SSA	113.58 ± 14.91	112.49 ± 16.74	0.576



Demo cases



Li 63yrs M



Wu 63yrs M



Cai 60yrs F

VS.



Zhang 60yrs F

Retrolisthesis

Anterolisthesis

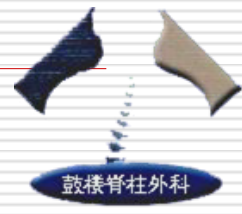
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Results

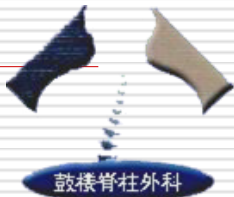
Table 2: Distribution of Roussouly sagittal classification in the two groups

	Retrolisthesis	Anterolisthesis
Type 1	12 (46.15%)	1 (3.3%)
Type 2	9 (34.62%)	6 (20%)
Type 3	4 (15.38%)	14 (46.7%)
Type 4	1 (3.85%)	9 (30%)
Total	26	20



Conclusion

- **PI, SS, LL and SVA in anterolisthesis group were all greater than the values in retrolisthesis group**
- **The results confirmed that retrolisthesis permitted to limit anterior translation of the axis of gravity since PT and TK were similar in both groups.**
- **It may also be speculated that low PI may contribute to development and progression of different slip direction of vertebrae.**



Disclosure

E-Poster #P4

Retrolisthesis and anterolisthesis of ...

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No Relationships

No Relationships

No Relationships

No Relationships

No Relationships

No Relationships

No Relationships



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