# Surgery For Adolescent Idiopathic Scoliosis (AIS):Two Steps Forward One Step Back For Coronal Plane Correction

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The authors declare that no potential conflict of interest in relation to the presented study

# Background & Hypothesis

- Surgery remains to be the gold standard in the treatment of AIS with curves over a certain magnitude

- To analyze the results of controlled trials (CT) on surgical treament of AIS published over 30 years and to compare the results of these CTs with each other for coronal correction

- **Our hypotheses** were that although coronal plane correction appears to be improved over this time frame the newly introduced techniques might be associated with a positive bias

# Method: Key words

"spine surgery","spine surgery  randomised clinical trial(RCT)", "spine surgery randomised clinical trial related articles ","scoliosis","scoliosis randomised clinical trial" ,"adolescent idiopathic scoliosis(AIS)", "adolescent idiopathic scoliosis randomised clinical trial ","Harrington"," Cotrel-Dubousset (CD)" , "Harrington vs Cotrel-Dubousset ","pedicle screw ", "pedicle screw adolescent idiopathic scoliosis","all pedicle screw ","hook system","pedicle screw vs hook","hybrid system","pedicle screw vs hybrid system","anterior surgery", "anterior scoliosis surgery","pedicle screw vs anterior surgery"

# Method

With Literature search initially 8355 articles,

775 abstracts were screened,

79 articles were retrieved in full;

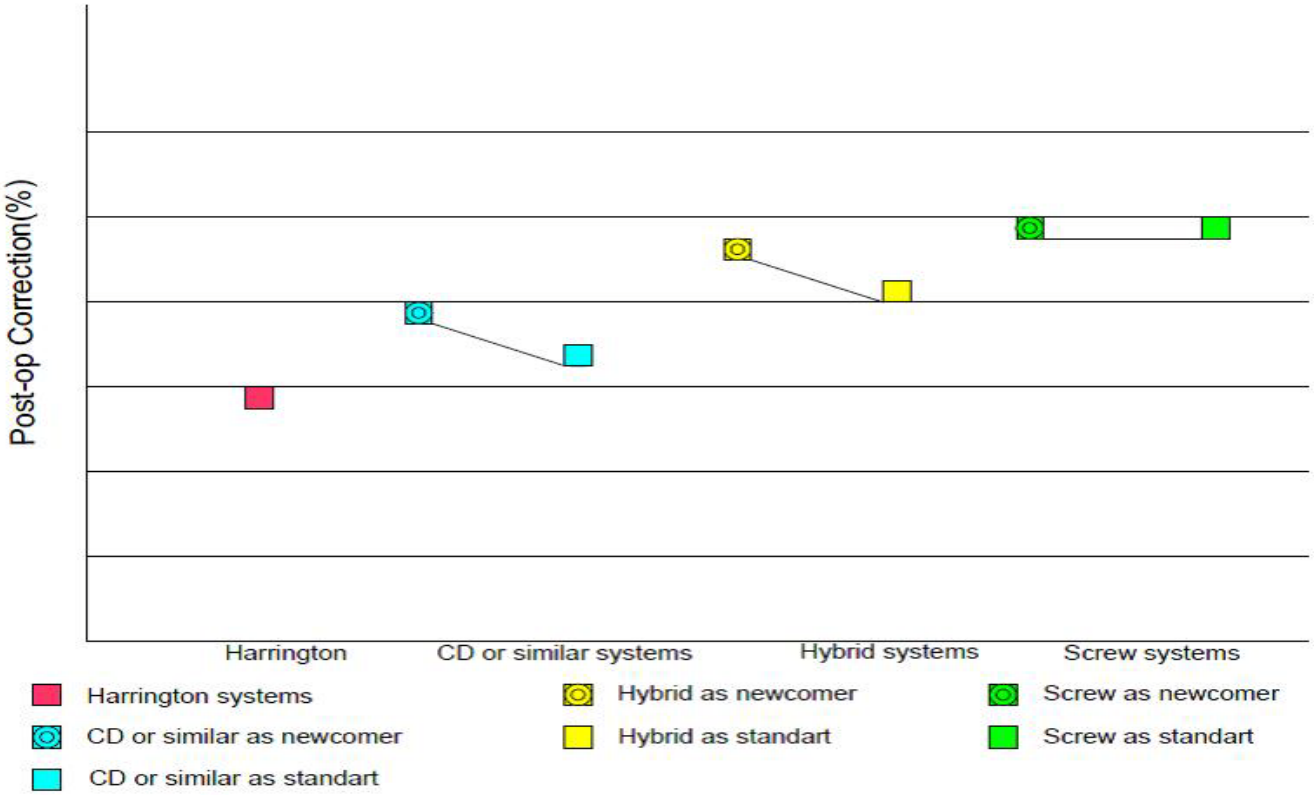
19 studies included ;

3 for Harrington vs CD, 2 for CD vs CD like system,3 for hybrid vs all hook and 7 for hybrid and all screw technique, 4 for all screw technique vs anterior technique found to be of adeqaute standards to be included in the review.

# Results

| SYSTEM | PATIENT NUMBER | PREOP COBB (°) | POSTOP COBB (°) | FINAL COBB (°) | CORRECTION (%) | LOSS OF CORRECTION (%) |
|---|---|---|---|---|---|---|
| HARRINGTON | 205 | 57.2 | 33.1 | 40.1 | 38.3 | 19.4 |
| CD or similar as newcomer | 126 | 56.4 | 23.8 | 29.1 | 47.4 | 6.4 |
| CD or similar as standart | 68 | 53.7 | 24.1 | 30.5 | 43.1 | 12.7 |
| HYBRID as newcomer | 98 | 70.2 | 30.5 | 35.0 | 56.3 | 8.2 |
| HYBRID as standart | 282 | 64.2 | 28.3 | 32.5 | 49.6 | 5.9 |
| SCREW as newcomer | 316 | 62.2 | 22.3 | 25.0 | 59.9 | 3.2 |
| SCREW as standart | 175 | 53.9 | 19.4 | 20.8 | 59.6 | 3.2 |

# Results


Post-op Correction(%)
Harrington
CD or similar systems
Hybrid systems
Screw systems
Harrington systems
CD or similar as newcomer
CD or similar as standart
Hybrid as newcomer
Hybrid as standart
Screw as newcomer
Screw as standart

# Conclusions

- These findings suggest that there was a gradual improvement in coronal correction and its' maintenance over 30 years.
- However, except all screw systems, there may be a positive bias for new systems as they are introduced or a negative bias for systems that are compared as standards of the day.
- Being aware of this phenomenon may be important in critical reading of reports on research in this area.