

Effects of Leaflet and Video-based Core Stabilization Exercises on Juvenile Idiopathic Scoliosis

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Objective

- **Idiopathic scoliosis (IS)** : a structural lateral curvature of the spine with an unknown etiology. Among these three types
 - adolescent IS (AIS): the most common and has been the focus of most studies
 - while research on **juvenile IS (JIS)**: less common
- **JIS** carries a higher risk of developing several deformities compared to AIS
 - 70% of JIS cases: progress and require treatment
 - with 56% needing spinal surgical management
 - Necessitating proactive and early management
- **Aim of this study**: evaluate the effectiveness of leaflet- or video-based instruction for home core stabilization exercises in JIS.

Methods

- Retrospective study
 - children with JIS: a Cobb angle of 10–20°
 - performed core stabilization exercises at home for 6 months
 - guided either by a leaflet or a video
- Evaluation
 - Whole spine X-rays: taken before and after the 6-month intervention to measure the Cobb angle and spinal rotation
 - Endurance: assessed by measuring the duration participants could maintain the bird-dog and Superman positions

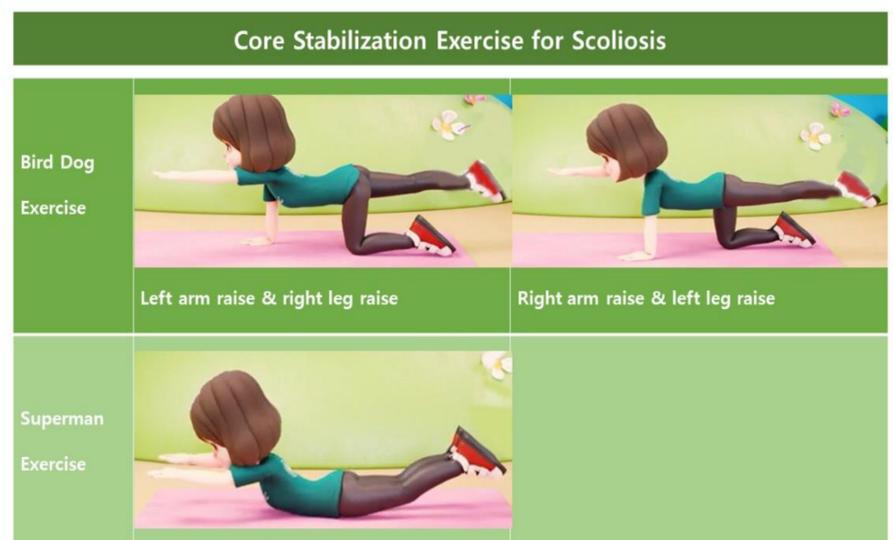


Figure 1. The leaflet provided to the leaflet group in this study

Results

- Thirty-six children with JIS participated in this study
 - 22 in the leaflet-based group
 - 14 in the video-based group
- Before and after the 6-month intervention period
 - the leaflet-based and video-based groups
 - showed no significant differences in Cobb angle, degree of rotation & endurance in the bird-dog and Superman positions
- However, within-group analysis before and after the 6-month exercise period showed significant improvement in both groups in Cobb angle and endurance in the bird-dog posture

| Total 36 children | | Mean ± Standard Deviation |
|----------------------------------|---|---------------------------|
| Age (years) | The youngest : 7 years The oldest: 9 years | 8.50±0.70 |
| Gender | Male | 5 |
| | Female | 31 |
| Group | Brochures | 22 |
| | YouTube videos | 14 |
| Height growth (cm) over 6 months | | 2.96±1.93 |

Table 1. Demographic data of the children with JIS

| | | Bird dog (sec) | Superman (sec) | Cobb's angle | Rotation Degree |
|---------------------|------|----------------|----------------|--------------|-----------------|
| Leaflet-based group | Pre | 3.18±4.77 | 9.55±2.13 | 12.19±1.74 | 0.18±0.39 |
| | Post | 5.91±5.03 | 10.00±0.00 | 7.10±4.59 | 0.09±0.29 |
| | Diff | 2.73±5.50 | 0.45±2.13 | -5.18±3.76 | -0.09±0.29 |
| Video-based group | Pre | 5.71±5.14 | 9.29±2.67 | 12.84±1.81 | 0.07±0.27 |
| | Post | 9.29±2.67 | 8.64±3.46 | 9.36±5.34 | 0.07±0.27 |
| | Diff | 3.57±4.97 | -0.64±2.41 | -3.48±5.26 | 0.00±0.00 |

Table 2. Comparisons of the leaflet-based and video-based groups

Conclusion

- **Both leaflet-based and video-based core stabilization exercises improve Cobb angle and enhance endurance in maintaining the bird-dog position in patients with JIS**
- Since no significant differences were observed between the two groups
 - offering either option may support proper home exercise performance