

Oral presentation

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## Does an imbalance situation stimulate a spinal straightening reflex in patients with adolescent idiopathic scoliosis?

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### Background

The correlation between balance and Adolescent Idiopathic Scoliosis (AIS) is still unclear. To help identify which exercises to recommend in the conservative treatment, evaluation of balance in AIS patients may be beneficial.

### Aim

Evaluation of change of scoliosis curves in a group AIS patients while submitted to an unbalancing situation.

### Design

Pre-post trial.

### Population

Fourteen AIS patients (46 curves), 12 to 15 years old, with  $19.3 \pm 9.9^\circ$  Cobb curves.

### Methods

Assessment has been made using GOALS (Global Optoelectronic Approach for Locomotion and Spine), a non-ionising instrument that allow a 3D reconstruction of the spine. We evaluated the patients twice in a standardised standing position: on the floor, and on a sway bench. For statistics we used paired T test; to consider significant a variation, due to the high precision of the instrument, we considered  $1^\circ$  Cobb.

### Results

While on the sway bench, there was a statistically (but not clinically) significant reduction of the curves from  $19.3 \pm 9.9^\circ$  to  $18.6 \pm 9.6^\circ$ . This was confirmed considering the average of the curves of each patient, but not when considering the worst curve (from  $26.1 \pm 9.4^\circ$  to  $25.4 \pm 10.2^\circ$ ), where statistical significance was not reached presumably because of the reduced sample. Looking at the curves, 13% worsened and 33% improved, versus 14% and 43% respectively looking at the patients.

### Conclusion

We did not find similar reactions in all patients, even if a spinal straightening reflex while on a sway bench appeared. In any case, these variations are of low degree.

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