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Clinical equilibration tests, proprioceptive system and Adolescent Idiopathic Scoliosis (AIS)

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Objective The AIS is a three-dimensional deformation of the spine, frequent, potentially progressive, with unknown etiology. It is generally accepted as being multifactorial origin, including neurosensorial factors, with orthostatic postural control disorders. In particular, Assaiante et al. showed a selective impaired of the dynamic proprioceptive tract. However, the procedures used to establish this impaired are complex and require motion analysis laboratories, inaccessible in routine clinical practice. Our objective is to determine whether, by clinical equilibration tests, simple, realizable in routine care, it is possible to find the same result.

Methods A cross-sectional study comparing 114 adolescents with right thoracic AIS (including 94 girls, mean age: 14.5 ± 1.9 years, Cobb angle: 35.7 ± 15.3°) with 81 matched non-scoliotic adolescents (including 69 girls, mean age: 14.1 ± 1.9 years) was conducted between January 2013 and March 2015. Three clinical equilibration tests are performed: a dynamic test (Fukuda stepping postural control), a static test (Fukuda stepping postural control in sitting) and a non-maintained test (Romberg test). Two static tests (Romberg sensitized Support monopodal eyes closed).

Results For the static tests, no significant difference between the 2 groups. The difference is significant for the dynamic test, for the distance travelled (P < 0.001) and the deviation angle (P < 0.0001). A causal relationship? Brain 2008;131:2401–13.

Conclusion Subject setting improves VV measurement in stroke patients with postural disorders. Maintaining the trunk upright enhances the validity of VV orientation, and maintaining the head upright enhances the validity of within-subject variability. Measuring VV without any body maintaining is valid in patients with satisfactory postural control in sitting.

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References

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