

## Reviewer's report

**Title:** Comparison of isometric trunk rotational strength of adolescents with idiopathic scoliosis to healthy adolescents: an observational study

**Version:** 1 **Date:** 11 April 2007

**Reviewer:** Axel Maier-Hennes

### Reviewer's report:

#### General

This is an interest paper giving a view to changes of muscle strength of adolescents with idiopathic scoliosis to healthy adolescents. In which way the results can influence the investigation of scoliosis patients for a dependable prognosis is not clear, but they can help to assess the outcome of conservative and operative treatment.

In addition the results could be used as an early indicator for a predisposition of scoliosis. The methods are appropriate and well described.

Therefore it deserves being published.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The comparison between the groups HG and ISG is difficult, because the neutral position for the HG is not a neutral position for the ISG.

From a biomechanical view the neutral position for the ISG is a prerotated position depending on the thoracic rotation. So the author's have to find a definition for a neutral position for the ISG. But this seems to be difficult, because of the scoliosis specific muscle activities, neither the muscle length nor the tension is exactly measurable. For to find the "middle position". it may be helpful to use the mean difference in the HG in the neutral position to describe a scoliosis specific neutral position.

The difference in the ISG between low force arc to the concavity and convexity is obviously, because of the same fact as described above: the neutral position is not a biomechanical neutral position.

The test with the Biodex Medical System 3 PRO, used in this study, is a global movement with the whole trunk against a fixed pelvis.

For a biomechanical analysis for the ISG it should be discussed that in cases with a upper thoracic curve, there is a counter rotation from the shoulder girdle against the chest. The latter may influence the rotation in comparison with the HG. So it make sense to differ in the ISG between lumbar and thoracic type of scoliosis.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

In table 3: The symbols for rotation: Rotation to the right +  
Rotation to the left -

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Discretionary Revisions (which the author can choose to ignore)

**What next?:** Accept after discretionary revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.