Reviewer’s report

**Title:** Quantifying intervertebral disc mechanics: a new definition of the neutral zone

**Version:** 2  **Date:** 23 December 2010

**Reviewer:** John Costi

**Reviewer’s report:**

**General comments**
The authors have submitted a major revision of their originally submitted manuscript and this reviewer would like to congratulate them on the thoroughness of their resubmission. After carefully considering each of their responses to the original feedback, this reviewer is satisfied that they have addressed the majority of concerns and comments. A small number of minor essential revisions are suggested.

**Discretionary Revisions**
None

**Minor Essential Revisions**
1. Figure 1. The dashed ellipse should be reduced in size to only identify the steepest slope of the load-displacement curve. As it stands, the dashed ellipse extends into the less steep portion of the curve and may lead to some confusion to the reader. In fact, the dashed ellipse, and reference to it in the figure legend, could be deleted.

2. Figure 1 legend. The sentence “To objectively define the borders of this range is the aim of this study” should be deleted. Firstly, it is an awkwardly written sentence, and second, a statement of aims in figure legends should be avoided and left for the main text.

3. Figure 3. This is a nice illustration of the four-point bending apparatus. However, for visual clarity, the shaded objects should be presented as black and white line art, or at the very least, the shading should be lighter (e.g. light grey). Additional annotations should be added to identify the fixation cups and vertebral bodies within the apparatus. The outline of the bath is not immediately obvious either and the lighter object shading might resolve this.

4. Figure 3 legend, last sentence. Consider re-wording the last part of the sentence as follows “….and the structure rotates around support points, R.”

**Major Compulsory Revisions**
None
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests