Reviewer's report

Title: Alterations in the vimentin cytoskeleton in response to single impact load in an in vitro model of cartilage damage in the rat

Version: 1 Date: 23 July 2007

Reviewer: Vic Duance

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This is an interesting paper with some novel observations but there are a significant number of errors that need to be addressed as detailed below.

- Major Compulsory Revisions

1. Labelling of figure numbers is different to that given in the text.

2. Page 5. It is unclear why the maximum modified Mankin score is 15 as there are 3 categories each with a maximum score of 6.

3. It is unclear how the 72 samples have been used; there are 7 time points +/- impact in triplicate gives 42 samples.

4. Page 5. How were the samples processed for histology/immunohistochemistry. The text just states “embedding medium”. Need details of fixation and processing.

5. Figure 1 A-D. Need to define which score relates to each in the text.

6. Figure 2a-d. Labelled as figures 2-5. No scale bar. Scale bar on Figs 4a and 4b (labelled Figs 9 and 10) = 0.5mm. As chondrocytes are approx 10 mm in diameter, this scale bar is clearly wrong.

7. Page 8. Modified Mankin score. It is unclear what is statistically different from what. With time compared with t=0? In SIL are not 2 and 4 hour different from t=0?

8. Page 9. Unclear why Figure 3b shows control values of 0 for 0, 1, 2, 4 and 8 hours when the text states that chondrocyte clusters are seen in both control and SIL samples at all time points.

9. ERK/pERK data needs to be included.

10. Page 12. Loss of PG from cartilage occurs in vivo when limbs are immobilised and in vitro if cartilage is not loaded. Some of this PG loss is by diffusion and not necessarily due to degradation: reword text.
11. Page 13. Increase in chondrocyte clusters occurs within 4 hours. It is suggested this maybe via integrin mediated signalling. No evidence is presented for this nor any discussion of the implication.

12. Page 14. Text quotes “In designating nuclear localization of vimentin as disassembly “ vimentin is not present in the nucleus as implied by this wording, requires revision.

- Minor Essential Revisions


2. Page 9. t=0. The time taken to obtain the cartilage to processing should be included here although it is mentioned in the discussion.

3. Several figures are lacking labelling on 1 or more of the axes.

4. Figure 5. No significance * on the figure.

5. Numerous spelling/typographical errors too numerous to list.

eg
Pg 2 standardized - delete d
Pg 3 ln 3. “been shown” is duplicated.
Pg 5. detectable should be detectable
Pg 5. “Cartilage washed” should read Cartilage was washed.
Several places the sign for mm is incorrect.

This manuscript requires careful editing to eliminate the numerous small errors.

Based on your assessment of the validity of the manuscript, what do you advise should be the next step?

- Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

- Level of interest

BMC Musculoskeletal Disorders has a policy of publishing all scientifically sound research whatever its level of interest. However if you choose one of the first three categories below, we may ask the authors if they would like the manuscript considered instead for the more selective journal BMC Medicine.

- An article whose findings are important to those with closely related research interests
Quality of written English
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As we do not charge for access to published research, we cannot undertake the costs of editing. If the language is a serious impediment to understanding, you should choose the first option below, and we will ask the authors to seek help. If the language is generally acceptable but has specific problems, some or all of which you have noted, choose the second option.

- Needs some language corrections before being published

Statistical review
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Is it essential that this manuscript be seen by an expert statistician?

- No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests

'I declare that I have no competing interests'