Reviewer's report

Title: Acute Cell Viability of the Meniscus Following Closed-Joint Knee Injury in a Lapine Model of Post-Traumatic Osteoarthritis

Version: 1 Date: 23 January 2014

Reviewer: Suzanne Maher

Reviewer's report:

1. The title of this paper is somewhat misleading as the central goal appears to be to quantify the release of nitric oxide and the cell viability after a closed-joint blunt impact to the knee joint. Suggestion: revise the title.

2. From the earlier 2010 publication, we already know that blunt trauma of this type leads to more damage/tears on the lateral meniscus; therefore it is not surprising that increased cell variability was also seen in this tissue.

3. The NO data is highly variable, and possibly the study was under powered to detect these differences; all statements suggesting that differences in NO exist, should be removed from the text.

Specific Comments:

The model did not consistently result in ACL and meniscal damage and the numbers for which rabbit experienced which type of damage are confusing. My suggestion is to include a table outlining which type of damage was experienced by each animal; this table could be augmented with the impact force for each animal to help the reader understand where the statement about 737 N as a critical impact force comes from.

Why was the response so variable? The contact pressure data seems to be for only one animal. Why? Is this consistent across animals?

How was the study powered? The n=5 seems low; especially considering that the NO data was not significant. All statements that make the claim that differences in NO were found should be removed.

More details on the anterior drawer test should be provided. What were the specifics?

Did the impactor also result in damage to the patella? Where exactly does the patella sit on Figure 1?

The statement that 'there was no correlation between magnitude of injury and impact energy' is confusing. How was impact energy calculated and why would one expect the two to be correlated?

How was 'average' contact pressure calculated?