Author's response to reviews

Title: The association of BMI and knee pain among persons with radiographic knee osteoarthritis: A cross-sectional study

Authors:

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Version: 3 Date: 21 November 2008

Author's response to reviews: see over
Dear Mr. Dunckley,

Please accept our revised version of the manuscript entitled *The association of BMI and knee pain among persons with radiographic knee osteoarthritis: A cross-sectional study*. We have carefully considered and addressed all of the reviewer’s comments, as detailed below.

Please let me know if anything further is required for this submission.

Sincerely,

Matthew W. Rogers, MS, CSCS
Director of Exercise Research

**Response to Reviewer’s report**

**October 21, 2008**

**Title:** The association of BMI and knee pain among persons with radiographic knee osteoarthritis: A cross-sectional study

**Version:** 2 **Date:** 9 November 2008

**Reviewer:** Annette W-Dahl

**Reviewer’s report:**
The authors have corrected the manuscript and it is much easier to follow and read now. However I have still some minor questions and one issue that need major compulsory revision. Please see below.

1. In the abstract, result section you have forgotten to change the sentence starting with "Unadjusted and adjusted …". (minor essential revision).

**Response:** The word “linear” has been removed; abstract now agrees with main text.
2. Was the logistic regression analysis multiple or stepwise? Please clarify. Did you analyze each BMI group using separate logistic regression analysis or was all BMI groups included in one logistic regression analysis? (discretionary revision)

Response: The text now reads, “…we computed odds ratios (OR) [22] using multiple logistic regression [23, 24]. Knee pain status (yes/no) was the outcome factor. With BMI as the exposure factor, subjects with normal BMI (18.5 to 24.9 kg/m²) served as the reference group for the analyses (e.g. Normal vs. Obese III). A regression model was run for each BMI group.

3. In the result part “Evaluation for potential confounders showed no significant difference….”. Evaluate or control for potential confounders you control for them using for example a regression analysis and you have only done that for age, gender, RKOA grade and BMI but not for different diseases, occupation and education. You don’t know how these factors affect the results. What you actually did was to compare the two groups (Pain and No pain) regarding number or percent of subjects in each group with different diseases, occupation and education. If there is a statistical significant difference between the two groups are not interesting when the statistical difference depends on several things. For example if you have enough subjects included you can have statistically significant difference of one year between the groups and that’s not clinically relevant. What’s interesting is if there is a clinical relevant difference between the groups. Write instead for example…. “There were no clinically relevant differences regarding different diseases, occupation and education between the two groups”.

Response: Understood. The Results section was revised to, “There were no clinically relevant differences regarding different diseases, occupation and education between the two groups.”

The difference in share of women and BMI between the groups was controlled for in the analysis.

Response: After considering your feedback and re-reading that sentence, we felt the sentence may be confusing to the reader. We chose to omit the sentence and allow the data in Table 1 to stand on its own.

In table 1 you don’t tell us if the different diseases are percent or n. (minor essential revision)

Table 1 shows the percentages. We display that more clearly now.

4. The last sentence page 7 starting “Based on…… is more a sentence for the method section. (discretionary revision)

Response: This sentence was relocated to the statistics sub-section under Methods.
5. There is an important difference between odds and risk. Odds Ratio (OR) can be used as an approximation of corresponding Risk Ratio (RR), but only at low risk. OR and RR are only equal when the figure is 1 in all other cases the OR shows a higher figure. To use the word risk ratio in the discussion part page 8, line 3 is not what you have done and line 6, over 8 times the risk of knee pain is not true (please see below).

An example: When you take out a card of a deck of cards the probability it will become a spade is 1/4. The odds is on the other hand 1/3 (read one against three)

And an example from your study: the group Obese III (number of subjects = 33) and Pain (number of event= 28) odds is 28/5 = 1.6 and the risk is 28/33=0.85.

The group Normal BMI (number of subjects=155) and Pain (number of event=66) odds is 66/89=0.74 and risk is 66/155=0.43. The risk ratio (RR) is the risk of Obese III/ risk of Normal BMI; RR=0.85/0.43=2. The odds ratio (OR) is the odds of Obese III/odds of Normal BMI; OR=1.6/0.74=7.4.

You have stated that its OR you have calculated and that’s correct and enough but don’t interpret OR as risk. (major compulsory revision).

Response: Point well-taken. Numerous manuscript revisions included wording changes such as “likelihood of” instead of “risk of”. We also changed wording such as “highest risk” to “highest association”. You obviously gave our paper close consideration. It has certainly benefited and thanks!

6. And the figures are not correct in the text (Results last 2 lines OR=1.7 respectively OR=8.6) comparing to table 3 (adjusted OR=1.6 respectively adjusted OR=7.5). (minor essential revision)

Response: Thank you – OR’s are now corrected in abstract and main text to match Table 3; text now states ‘adjusted for age, gender, and RKOA grade...’