Author's response to reviews

Title: Comparison of Published Orthopaedic Trauma Trials Following Registration in Clinicaltrials.gov

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Comparison of Published Orthopaedic Trauma Trials Following Registration in Clinicaltrials.gov

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We thank the reviewers for their comments and offer the following responses.

Reviewer: 1

1. When we ourselves searched in Clinical trial gov by selecting the category Wounds and injuries and further searched for the Condition Fracture bone we found 728 studies and for the condition Radius fracture we found 53 studies and for tibia fractures 41 studies and for Sprains and strains we found 114 studies registered in clinical trials. This was all studies registered up till the present date but all together this make 936 studies and most of these studies probably fits to the category orthopedic trauma. In addition there are many other conditions which also may fit the issue orthopedic trauma. 

I wonder if the search strategy of the authors makes a serious bias possible by losing a lot of studies which are registered in clinical trials.gov. I would appreciate if the authors could explain their search strategy better and answer the question if their search strategy may underestimate the number of orthopedic trials registered? Would it not be better just to use one of the defined conditions in clinical trials .gov? This would make it easier to judge the validity of the results. In this study the validity of the result is difficult to judge because it seems as many trials representing studies orthopedic trauma has not been included at all. The high number of excluded studies (Out of 130 closed studies were 67(52 %) excluded simply because the completion date was expected to be after a certain date), also makes it hard to judge the validity of the results.

We performed the search again using the conditions the reviewer had used. Our search results greatly differed, perhaps because of the reason that the reviewer’s search results listed all studies until the present date whereas our study focuses only on studies with a completion date up to or before July 2009.

When we modified the dates by selecting trials registered on CTG by July 2009 using the terms “Orthopaedic trauma OR orthopaedic trauma” and further listed conditions the reviewer had used, we found: 55 studies for "Wounds and injuries" and "Fracture bone", 5 study for "radius fracture", 1 study for "tibia fracture", and 3 studies for "sprains and strains” resulting in 64 studies in total. Of these, no studies met our inclusion criteria (either due to no primary completion date,
completion date after July 2009, non-randomized, etc.) or a publication resulted after our period of analysis (after March 2011).

We updated the manuscript to reflect that conducted the search also using these suggested terms.

2. It seems to me that the author than have decided that for the studies closed in 2009 one to one and a half year must be adequate time for preparation, submission and also waiting for eventually approval of the study. In some of the journals it probably takes more time (ex: JBJS AM). Do the authors have any data considering the median time from closure of a study until publication or do the authors know anything about the median time from submission until publication or decision for approval of a paper in the different journals?

The reviewer makes an excellent point which we considered also. We searched the literature to see if such a timeframe exists but it was not available. We did email a few journals however they were not willing or able to give us the timeframe. Therefore we extrapolated from our own experiences and that of others, that 1.5 years should be adequate.

3. The authors simply repeat a lot of the information given under methods. You must take a decision what belongs to method and what belongs to results.

Thank you for this suggestion. We have made changes to the methods and results sections and moved the ‘literature search’ paragraph from the results section to the methods section.

4. Which agreement criteria were evaluated to find a kappa and CI? How many studies were evaluated for final inclusion and were these evaluations made “blinded” in the meaning that the reviewers had no information how the others evaluated?

Agreement was calculated based on the binary outcome of fulfilling the inclusion criteria or not. 19 studies were evaluated. The agreement process included titles, authors, and journal and year of publication, and abstract for ensuring completeness and studies were not missed.

5. The conclusion is not wrong but the sentence does not reflect the main message of the results. I would say when 90 % of the publications did not have major discrepancy and sample size discrepancy was only + 6% than it may be better to change the conclusion to: Only 10 % of the publications had major discrepancy between trial registry and publication, but smaller changes are frequently made to the final presentation of the data that are not reflected in the registry of the trial.

Thank you. We have changed this sentence.
6. The aim of a mandatory registration is to avoid publication bias and especially the previous underreporting of studies with statistically non-significant outcomes. In the discussion, the authors simply state that they are unable to determine the reason for trials failing to result in publication but suggest that all journals should make registration of clinical trials mandatory. Although they cannot tell the reason, they can have some reflections concerning this topic.

**We thank the reviewer for this suggestion. We have provided some insight as to why we believe trials with insignificant findings are not disclosed.**

Reviewer: 2

The Introduction should specify more the original intention to establish a CTG register, and they should explain the meaning of NCT.

This change has been made in the introduction.

Also, they should explain why/how the NCT ID in the final publication can allow the reader to evaluate the strength of the trial by comparing it to the original plans. This is only stated.

Information about the helpfulness of NCT ID in evaluating strength of a trial has been included in the discussion.

Furthermore, much of the information in Results should be presented in Methods.

Please find this change made as previously mentioned.

In Discussion, the authors focus on strengths of the study, but all studies have limitations, and the authors should also focus on these.

We thank the reviewer for pointing this out. We have added a section in the discussion explaining limitations for our study.

In the Conclusion, the authors state that "When trials are registered, a great number of them do not cite the registration number in the publication, making it impossible for the reader to evaluate the study conclusions in relation to the original plans for the trial." Why is this so, and is this a conclusion?

We believe that failing to cite the registration number does not allow adequate means to find the trial on CTG, as many trials have similar keywords and outcome measures, and the only way to definitely identify a trial is by the registration number. Failure of access to the study’s originally planned primary outcomes and sample sizes decreases the reliability of the results. It must raise concerns concerning the internal validity of the data. We feel these are important comments/conclusions to improve the quality of orthopaedic reporting.
Furthermore, the authors conclude that "We suggest all journals should make registration of clinical trials mandatory for publication."
Why is this so, and is this a conclusion?

In our opinion, making registration mandatory for publication will persuade authors to ensure that registration of a trial is carried out with the knowledge that if it is not done so, their study may be rejected for publication. Furthermore it would allow the readers to verify the validity of results of the study. We feel these are important comments/conclusions to improve the quality of orthopaedic reporting