Response letter (invited resubmission **jcm-1091637**)

Dear Reviewers,

we would like to thank you for your valuable comments on our paper *"Abductor muscle force after straight-stem compared to short-stem total hip arthroplasty: Functional assessment of 70 patients of a randomized controlled clinical trial".* With this response letter, we would like to take the chance of resubmission for potential publication of our article in The Journal of Clinical Medicine.

We appreciate all of the reviewers' comments and are pleased to address all raised issues after the major revision process with the attached detailed point-by-point response. With gratitude, we'd like to thank the reviewers for their specific comments which helped us to further improve our manuscript. All of the below mentioned comments, corresponding remarks and corrections were implemented in the revised manuscript.
The manuscript text has been edited accordingly and, as clearly stated in your submission guidelines, track-changes were used.

We confirm that all authors have read the revised manuscript and approved its resubmission. With this major revision, we hope to meet the reviewer's expectations and would like to thank you once again for your time and effort regarding the substantial improvements of our manuscript.

Please do not hesitate to contact us if you have further questions.

Yours sincerely,



The Corresponding Author
On behalf of all authors

Point-by-point response to the comments of **Reviewer 1** on the manuscript *"Abductor muscle force after straight-stem compared to short-stem total hip arthroplasty: Functional assessment of 70 patients of a randomized controlled clinical trial"*

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Comment **Reviewer 1:**

This current manuscript is NOT a RCT. This is an observational study BASED on a RCT - and the manuscript must follow STROBE guidelines. Only 70 of original 140 patients are reported.

Response: *Thank you for this valuable comment. We clearly see the reviewer's point and appreciate the straight message. Indeed, we evaluated the first consecutive 70 patients of the study NCT03147131. The primary question of the study was to investigate the changes in bone mineral density after implantation of a cementless short compared to a conventional stem. 140 consecutive patients without exclusion criteria were included for this purpose. Secondary outcome measures included PROMs and measurements of abductor muscle strength. When planning the study, we assumed a greater difference in means of the two groups for muscle force than for the DEXA measurements. Therefore, the number of cases for the bone mineral density analyses differ. Taking other RCT`s with similar question into account, the assumed number of cases seems plausible (Jensen C et al. "Recovery in mechanical muscle strength following resurfacing vs standard total hip arthroplasty – a randomized clinical trial", Osteoarthritis Cartilage 2011, DOI: 10.1016/j.joca.2011.06.011; Krych A J et al. "No benefit of the two-incision THA over mini-posterior THA: a pilot study of strength and gait", Clin Orthop Relat Res. 2010, DOI: 10.1007/s11999-010-1660-6; Winther S B et al. "A randomized controlled trial on maximal strength training in 60 patients undergoing total hip arthroplasty", Acta Orthop. 2018, DOI: 10.1080/17453674.2018.1441362.) To point this out more clearly, we added the following amendment within the methods section: (Line 64-65:* As part of a larger randomized controlled trial (NCT03147131), 70 patients were prospectively included after local ethics committee approval (No. 108/10).)

For reasons of clarity and in order to clearly state that muscle strength was not the primary outcome measure of the study, we specified the title as follows: (Line 2-5: "Abductor muscle force after straight-stem compared to short-stem total hip arthroplasty: Functional assessment of 70 patients of a randomized controlled clinical trial")*. However, we believe that study design corresponds to a randomized clinical trial. By addressing the above mentioned issues, we hope to meet the reviewer's expectations.*