Reply to comment on Hu et al. “Allograft versus autograft for anterior cruciate ligament reconstruction: an up-to-date meta-analysis of prospective studies”

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We would like to thank Dr. Wang and Dr. Xiong for their interest in our article entitled, “Allograft versus autograft for anterior cruciate ligament reconstruction: an up-to-date meta-analysis of prospective studies” [1]. To answer their queries, we would like to make the following comments:

1. When all factors that could influence the effect size are the same among all eligible studies, the fixed effect models should be considered. However, in our study, some factors that could influence the effect size, such as study design and patient populations, are not identical among all included studies. We therefore chose a random-effect model to account for heterogeneity in the study design and patient selection among all eligible studies.
2. The assessment of the methodological quality of eligible studies is an essential step in meta-analysis. Therefore, a comprehensive and rigorous evaluation of the methodological quality of included studies was performed independently by two authors (QJ and XD), though the detailed scores were not provided in the manuscript. Any discrepancies on methodological quality were resolved by consensus. When necessary, a third author (ZJ) was consulted to make the final decision.
3. We agree that a sensitivity analysis should have been conducted by excluding all prospective cohort studies.

That might provide more useful information to readers. We therefore performed the sensitivity analysis by only including four randomised controlled trials [2–5] as supplementary materials of our manuscript (Table 1). However, compared with the overall main analysis, pooled data only from the randomised controlled trials gave consistent findings for stability outcomes, objective International Knee Documentation Committee (IKDC) scores, Lysholm scores, Tegner scores and clinical failures.

4. We only included those studies with a minimum two-year follow-up for the meta-analysis. For the data we showed in the study descriptions part of our manuscript, the duration of follow-up was not identical in all the eligible studies. However, a sensitivity analysis was not performed by varying the duration of follow-up, due to the limited availability of data.
5. A previous study has shown that it appears safe to borrow standard deviations from other studies in meta-analysis when some included studies do not report the standard deviations [6]. Therefore, in situations where the standard deviations were not reported, the mean of the standard deviations from the other trials that reported this statistic was imputed in our study. Two previous systematic reviews and meta-analyses [7, 8] regarding anterior cruciate ligament reconstruction suggested that the imputed standard deviations might still be safe even in the subjective outcome measures. However, there is no doubt that the findings of our study have been compromised by the use of imputed standard deviations, which we have mentioned in the limitation part of our manuscript.

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We would like to thank them again for their valuable comments and reasonable questions concerning our article.

Table 1 Sensitivity analysis was conducted by only pooling data from four randomised controlled trials

Outcomes	Risk ratio or mean difference (95 % CI)	<i>P</i> value	Test for heterogeneity	No. of patients	No of studies
Instrumented laxity	0.95 (0.46, 1.96)	0.89	0.81	444	3
Lachman test	0.84 (0.56, 1.25)	0.39	0.50	407	3
Pivot shift test	0.99 (0.58, 1.70)	0.98	0.96	509	4
IKDC scores	0.71 (0.37, 1.36)	0.30	0.78	509	4
Lysholm scores	−1.00 (−2.52, 0.52)	0.20	1.00	407	3
Tegner scores	0.11 (−0.21, 0.44)	0.49	0.91	407	3
Clinical failures	NE	NE	NE	288	2

IKDC International Knee Documentation Committee; NE not estimable

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