Dear Editor,

We thank the reviewers and editorial team for taking their efforts to improve the article to increase its value for publication. Herewith we submit the revised version of the article addressing the reviewer's comments and the action taken for their valuable suggestions have been mentioned below.

| **Reviewer 1 comments** | **Authors Reply** | **Action Taken** |
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| There are "MSC type" annotation errors in the second column of row 6 and 7 of Table 2. | Thanks for the keen observation. We have corrected the typographical error. | Table 2<br>Row 6,7 |
| It can be seen from Table II that when AD-MSCs were used as therapeutic agents in the clinical studies included in the analysis, most of the studies only injected different doses of AD-MSCs into the knee joint cavity (7/10). However, when BMSCs were treated, adjuvant therapies such as HA and PRP were often injected at the same time, and BMSCs alone were rarely injected alone (4/12). So, do we need to exclude any increase or decrease in efficacy with or without adjuvant therapy when we analyze this data? Or should we eliminate the therapeutic effect of adjuvant therapy and placebo by comparing with the control group | Thanks for the insightful comment. To start with, we found only one study by Estrada et al. [19] comparing the effects of AD-MSCs and BM-MSCs on a head to head comparison, hence we were forced to do an indirect estimate of their efficacy on comparison to their controls. As mentioned by the reviewer most of the AD-MSC studies used the intervention as a standalone therapy whereas BMSCs studies combined them with other interventions such as PRP or HA. We also noted that the additional | None |

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| in each trial before proceeding to the next step of analysis and comparison between the efficacy of AD-MSCs and BMSCs? | intervention either PRP or HA is also being utilised in control group and for analysis we only used the mean difference of the intervention compared to the control group and hence it nullifies the effect of the additional intervention and hence the analysis stand undisturbed by the additional interventions utilised in either of the groups. However, we thank the reviewer for bringing up the point which is also highlighted in the limitation of the study while mentioning on the heterogeneity of the included studies highlighting the data presented in Table 2. | |
| It can be seen from Table I that there were no significant differences in age, gender and disease degree among the subjects of each clinical study. The authors also made an analysis after combining the subjects involved in each study | Thanks for the insightful comment. We do agree that the two groups were not dissimilar. The data on the composite number of patients in either of the groups after combing them have been explicitly | None |

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| into a whole. Could you please add a chart here that lists the number of patients treated with AD-MSCs and BMSCs after all studies were pooled in the manner of a pooled randomized controlled study, and present the number of subjects at each follow-up time point (6/12/24 month)? | described in the results section and while enumerating the individual results the number of studies available on the individual follow-up time points have been explicitly described with references and also expressed in the corresponding figures. Addition of another table would only duplicate the data that is already presented in text and in figures hence we defer to add one as suggested. Moreover, considering the variability in the utilisation of outcome parameters and the follow-up time points, we cannot generalise the patient population on a whole for individual timepoints that is the reason they are explained in the beginning of the individual outcome parameters to make it clearer. | |
| It has been reported that the proliferative activity and therapeutic capacity of MSCs | Thanks for the comment. We also wanted to understand the role of | None |

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| depend on the underlying disease status of the provider and the site of extraction, especially adipose-derived MSCs. Therefore, could you provide the inclusion and exclusion criteria for the clinical studies included in the analysis? Is there any relevant information about the exclusion of underlying diseases such as diabetes and autoimmune diseases to ensure that the clinical data included in the analysis are more comparable? | underlying disease status of the provider and the impact of site of extraction. However, upon analysing the studies we found mention on the status of the osteoarthritis per se being detailed for the inclusion criteria and the exclusion criteria did not mention about the comorbid illness that were included or excluded in particular and almost all of the AD-MSCs were harvested from the abdominal fat as a liposuction procedure as described by the authors. | |
| **Reviewer 2 comments** | **Authors Reply** | **Action Taken** |
| The title,abstract and key words can reflect the main subject of the manuscript. | Thanks for the insightful comment. Title have been revised as suggested. | Title<br>Keywords |
| In the background, the author can add a little more conflicting references on the evaluation of mesenchymal stem cells from two sources. | Further conflicting references have been added to the introduction section of the manuscript. | Ref 14,15,16 |
| The methods are detailed and results support the conclusion. | Thanks for the supportive comments. | None |
| Heterogeneity among the majority of the analyzed | We do realise this limitation and explained it in detail in | Limitation |

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| outcomes may affects the final conclusion. | the limitation section of the manuscript. | |