

## Reply to the letter to the editor: Probiotic *Lactobacillus paracasei* effect on cariogenic bacterial flora

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### Answer of the authors:

We were very delighted to receive the letter from Professor Alireza Akbarzadeh Baghban. His suggestions for our statistical methods indeed pointed out some important issues needed to be clarified. The purpose of using Wilcoxon signed-rank test in our study [1] was to test if there is any intra-group difference of the measurements between two specific time points (T1 vs. T2, T2 vs. T3, and T1 vs. T3). Wilcoxon signed-rank test [2] was beneficial for the pairwise comparisons in detail. We did not use Friedman test in the beginning since the overall difference among three time points was not our major concern. However, it is indeed more logical if we employed Friedman test first and followed by Wilcoxon signed-rank test.

The purpose of using Mann–Whitney U test [2] in our study was to test if there was any inter-group difference of the measurements at three specific time points (T1, T2, or T3), and the trend of measurement along time was not our major interest. However, the generalized estimating equations are absolutely a decent method for analyzing correlated data in longitudinal studies. We recognized the benefit in this advanced statistical methods and would consider its application in our future study. In this study, we did observe a short-term probiotic effect toward cariogenic bacterial flora, that is, our

current data result did not reveal any significant change in any condition between two groups. A long-term study with suitable potency of *Lactobacillus paracasei* will be next direction.

About the sample size, we prepared total 90 sets of oral tablets (45 of the each group) at first. Although 90 volunteers were willing to join our study, 7 of them started to have dental visits such as orthodontic treatment or endodontic treatment and 3 volunteers turned out to be smokers. Ten volunteers were excluded thereafter. Only 80 participants were included in our study at the beginning of study. That is the reason why the 80 volunteers are unequal in the two placebo and experimental groups. Fortunately the declined subject numbers did not interfere with the statistical requirements and the result should be acceptable.

We are by all means grateful to these well-acknowledged comments and Dr. Baghban's interest in our study. We would respect the idea of using the advanced statistical methods in our future study.

Sincerely yours

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### References

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