Letters From Our Readers

To: Editor, *The Angle Orthodontist*

Re: Evaluation of the use of low-level laser therapy in pain control in orthodontic patients: A randomized split-mouth clinical trial. *The Angle Orthodontist*. 2016; 86:193-198.

We read this paper with great interest. The article addressed many issues associated with the efficacy of application of low-level laser (LLLT) in pain control and we appreciated the systematic manner in which the Randomized Clinical Trial was performed. We would like clarifications regarding some aspects of the study.

1. The conclusion was that there was a significant reduction in pain in the exposed side of the patients when compared to the control/placebo side at all time intervals. Was this conclusion based on Table 3, since the VAS data in Tables 1 and 2 suggest otherwise? (The median VAS values for T1 and T2 reported in Tables 1 and 2 are higher in the exposed group than the placebo group which is contrary to

Indeed there was a misconception on Tables 1 and 2. During the review process of the article, that we have already sent, the values related to the control/placebo group (Table 1) and the exposed group (Table 2), in times T0, T1 and T2 were not written properly and they are incorrect. The existing values must be replaced by those presented on Table 3 with the respective group and time. The values presented on Tables 1 and 2 are regarding to the hemi arch evaluation on the left side (Table 1) and on the right side (Table 2). Unfortunately they were taken out from the text during the review process. If we analyze the results individually from placebo and exposed group (Table 3) at each time, we can verify that there was pain reduction on the exposed group.

2. *P* values between T0 and T1 and T1 and T2 for Table 2 have been mentioned but did not discuss P values for the data in Table 1. Which time points were significantly different?

The answer to this question is related to the misunderstanding of values expressed on Tables 1 and 2.

3. Can you elaborate on how the maximum and minimum values given in Table 4 were arrived at? (The minimum value is uniformly −100 for all groups and time periods).

It was calculated for each participant the percentage between the moments T1/T0 and T2/T0. All of them were part of the exposed and control groups. Those are the minimum and maximum values obtained by patients in an average percentage of change on the groups. However, some data were missing because it was not possible to calculate for the ones that started with "0" as a variable value. The calculation performed for each one was ((T1 – T0)/T0)*100. The minus 100% means that the patient that changed less dropped 100% from its original value. The one that changed the maximum reached approximately 1836%. When the value is negative, as an average, it is means that the pain decreased and when it is positive it means that it increased.

4. It was mentioned that based on Table 4, there was a decrease in pain by 13.89% in the EG group and 44.39% increase in the PG. But the numerical data in Table 3 suggests an increase in both the groups. Furthermore, are you referring to a reduction in pain intensity or the proportion of patients in whom pain was reduced?

This data refers to the percentage of patients in which the pain was reduced. It was calculated for each participant the percentage of change between the moments T1/T0 and T2/T0. It is different from Table 3 in which shows the median in each group also time individually. All this happened at the exposed and control groups. So, it was verified that there was an increase in the pain (T0-T1) and after 24 hours this values decreased (T2-T3) in both groups. However, patients exposed to laser (LBI) presented an increased response at the decrease of the pain.

5. The study involved placement of separators on the right side initially and then on the left side one week later. Since patients had already had the experience previously, do you think that the patient's response to the pain at the second exposure would be different?

The design of the study was done to avoid the bias of this question:

The washout period that must be carried out to avoid the carry-over effect, thus preventing bias (factor of confusion). The (washout) period was based on the time of pain stipulated on placement

of elastic separators. According to the literature, pain starts 2 h after the application of orthodontic fixed appliance, rises over the next 24–36 h, starts to decrease on day 3, and disappears within 6–7 days (Erdinç AM, Dinçer B. Perception of pain during orthodontic treatment with fixed appliances. Eur J Orthod. 2004;26:79–85).

We do believe that patient might feel similar experience of pain, but individual characteristics or bite preferences could occur so, in this approach, we are confirming the average experience of the pain testing both sides.

6. Was the presence of third molars and its influence on the tightness of contacts evaluated as a possible confounding factor? Could this have affected the pain intensity?

Since we do not have any evidence of this fact, this information was not tested and we cannot infer if this could have influenced. We hope that the answers have been clear to our colleagues.

Sincerely,
Dr. Rodrigo Farias
Dr. Sérgio Miguens
Dr. Luciane Closs