In our study, individuals who met the inclusion criteria of maxillary constriction were selected by means of block randomization. Therefore, no grouping was performed according to halitosis values. Future studies on this subject could take initial halitosis values into account. In addition, oral hygiene training was provided by the same person in the same way regardless of group.

In the study, along with other treatment methods (eg, oral hygiene training, elimination of periodontal diseases, referrals to related medical doctors, providing psychologic support if necessary),[5,6] the use of RME for patients with halitosis in the presence of maxillary constriction is emphasized. However, it is not recommended that RME be considered for patients who do not require orthodontic treatment. These are totally different statements. A similar example is the treatment of concomitant conductive hearing loss in patients with maxillary constriction. RME helps these cases of hearing loss,[7-10] but it is not performed for all patients with conductive hearing loss. In conclusion, our findings suggest that we should consider RME as an alternate or additional treatment approach in patients with both maxillary constriction and halitosis.

Turkan Sezen Erhamza
Ferabi Erhan Ozdıler
Kirikkale and Ankara, Turkey

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Low-level laser therapy increases interleukin-1β in gingival crevicular fluid and enhances the rate of orthodontic tooth movement

We read with great interest the well performed study in the October issue, "Low-level laser therapy increases interleukin-1β in gingival crevicular fluid and enhances the rate of orthodontic tooth movement" (Varella AM, Revankar AV, Patil AK. Am J Orthod Dentofacial Orthop 2018;154:535-44.e5), on the effects of low-level laser therapy on interleukin (IL) 1β levels in gingival crevicular fluid and its correlation with orthodontic tooth movement.

As stated in the article,[1] orthodontic tooth movement is a highly complex process defined as an adaptive biologic response to interference in the physiologic equilibrium of the dentofacial structures by an externally applied force,[2] from both biomechanical and biologic points of view. This stress, which accumulates over time in the periodontal apparatus, can result in a significant reduction in the speed of the tooth movement and in the relative orthodontic treatment length, a condition that sometimes determines the success of the treatment. Among the possible agents for dental movement, low-level laser therapy (LLLT) has been shown to be a valid method that sustains tooth movement by means of the photobiostimulation effect which would allow a greater speed of orthodontic movement.[3]

The tissue-stimulating effect induced by LLLT is also due to the biologic growth and metabolic changes of soft and hard oral tissues, which stimulates, in the long term, a better bone and tissue neoformation process, which also facilitates a greater shift in the shortest time.[4] Moreover, the use of LLLT in the orthodontic field has been shown to be effective in tissue biostimulation, with stimulating effects in tissue repair and dental displacement, as well as inhibiting the release of pain mediators related to analgesia.[5]

Therefore, due to the importance of the topic analyzed in the study, we have some comments about some missing points of their detailed and well performed analysis.

As reported by Varella et al,[1] their treated patient presented increased levels of IL-1β in the experimental teeth treated with LLLT compared with the control canines, with a positive correlation between the IL-1β levels and the amounts of tooth movement across all time intervals. In this regard, did the authors also analyze the IL-10 levels and the IL-1β/IL-10 ratio?

Previous investigators have suggested that a higher IL-1β/IL-10 ratio may be correlated with a

good status of periodontal health as indicated by a lower proportion of periodontal pathogens of the orange and red complex.[6] Furthermore, did the authors evaluate (maybe unpublished data) the effectiveness of LLLT in reducing orthodontic pain? Previous studies have indicated that an increase in prostaglandin-E2 (PGE2) levels is related to the initial intensity of the pain, and that an increase in IL-1 is related to pain occurring 24 hours after the application of orthodontic force.[7] Moreover, LLLT has been shown to be effective for treating orthodontic pain because it is easy to apply and a noninvasive tool in orthodontic patients.[5]

We compliment the authors for conducting this important study that raises interesting questions to discuss and suggests these different and alternative orthodontic treatment methods. It is our opinion that more studies aimed at describing the different adjunct in the orthodontic procedures should be performed in the orthodontic field. A more comprehensive detailed approach could also stimulate further clinicians and researcher to provide further methods, maybe with a multidisciplinary approach, aimed at opening up future directions for the LLLT during orthodontic treatment.

Gaetano Isola
Sebastiano Ferlito
Ernesto Rapisarda
Catania, Italy

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Authors' response

We appreciate the interest from the readers of *AJODO* in our article (Varella A, Revankar AV, Patil AK. Low-level laser therapy increases interleukin 1β in gingival crevicular fluid and enhances the rate of tooth movement in humans. Am J Orthod Dentofacial Orthop 2018;154:535-44). We would like to clarify some misunderstandings related to the article.

IL-10 levels were not assessed because it was not an objective in this study. The study aimed at assessing the levels of proinflammatory cytokine 1β in conjunction with LLLT. IL-10, being an anti-inflammatory cytokine, would have no role in bone resorption associated with tooth movement. Previous studies have shown that the levels of IL-10 fall in orthodontic tooth movement.[1] As readers have rightly pointed out, IL-10 assessment and its ratio with IL-1β would be more relevant in periodontal disease assessment than in tooth movement.

The effectiveness of LLLT in reducing pain associated with tooth movement was not an objective in this study and therefore was not investigated.

Alissa Maria Varella
Ameet V. Revankar
Anand K. Patil
Dharwad, Karnataka, India

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Erratum

Correction to: Chen LL, Xu TM, Jiang JH, Zhang XZ, Lin JX. Longitudinal changes in mandibular arch posterior space in adolescents with normal occlusion. Am J Orthod Dentofacial Orthop. 2010;137(2):187-93.

The authors identified minor reporting errors in their article.

1. Regarding the Materials and Methods, the total number of total subjects selected from 901 high school students was 73. The final sample consisted