

The Effect of High-Frequency Vibration on Tooth Movement and Alveolar Bone in Non-Growing Skeletal Class II High Angle Orthodontic Patients: Case Series

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Summary

This study, Dr. El-Bialy reviews the use of high frequency vibration to shorten clear aligner treatment time and preserve alveolar bone in four cases presenting with Class II skeletal patterns (convex profiles with retrognathic mandibles) without surgical intervention.

Key Findings

- ✔ HFV facilitates complex orthodontic tooth movements including posterior teeth intrusion and expansion, incisor decompensation, as well as forward mandibular rotation/projection in non-growing patients with a skeletal Class II relationship, which otherwise would have required surgery.
- ✔ HFV increases bone formation labial to lower incisors which may minimize future gum recession due to their labial inclination.
- ✔ Patients switched out clear aligner trays every 3-10 days, depending on patient compliance with aligner wear.

Case 4: completed in 4 months without refinement, switching trays every 4-5 days

This 14-year-old female presented with chief concerns that she wanted to improve her crowded teeth and deep bite as well as improve her recessive chin as much as possible without surgical intervention. The patient maturity indicator from CVM and physical/menstrual history confirmed that she already passed her growth spurt. Her treatment included 23 aligners, switched out every 4-5 days, and no refinements. Treatment was completed in 4 months. CBCT shows improved bone quality at the end of treatment which will help stabilize the results.

Figure 1



Figure 2



Figure 3

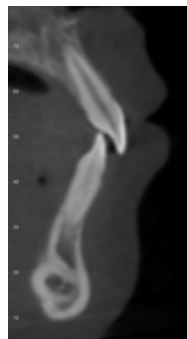


Figure 4



Figure 1 Initial photographs showing convex profile with recessive chin and anterior crowding. **Figure 2** Final photos showing improved patient's profile and chin projection as well as aligned upper and lower incisors and Class I buccal occlusion both sides. Additionally, over bite has been improved compared to initial records. **Figure 3** CBCT-driven sagittal screen of lower incisor showing increased overbite. **Figure 4** Final CBCT-driven sagittal screen radiograph of upper and lower incisors showing improved overbite and bone labial to both upper and lower incisors.

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Case results may vary. The VPro series devices are intended for use by the orthodontic patient during treatment with aligners to facilitate minor anterior tooth movement (USA).