

The Equiplan-Quad Helix Combination in Deep-Bite Cases

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This article presents a treatment method and fixed appliance designed to correct dental deep bite in patients of any age, or skeletal deep bite in growing patients. The appliance was developed by Dr. J.M.S. Pato in 1992 by attaching a Planas Equiplan¹ to a Quad Helix* or a transpalatal bar (Fig. 1).

The palatal expander is inserted into the lingual tubes of the first molar bands or welded directly to the molar bands. The Planas Equiplan is attached to the anterior arms with acrylic or directly to the anterior helices of the Quad Helix. Although the same bite-opening effect can be obtained by using an acrylic or metal biteplane, such as the Bite Turbo,** or with lingual appliances, we use the Equiplan because of our long experience in using it with Bimler functional appliances.

The Equiplan-Quad Helix combination can expand the palate and open the bite at the same time by intruding the anterior teeth, extruding the posterior teeth, and unblocking the occlusal plane. Thus, it can help resolve TMJ problems

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Fig. 1 Planas Equiplan-Quad Helix combination.



Fig. 2 Case 1. 10-year-old male Class II patient with deep bite before treatment.



Fig. 3 Case 1. Fixed appliances used with Equiplan-Quad Helix combination.



Fig. 4 Case 1. After four years of treatment.

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and shorten treatment time. In Class II cases, with the occlusion unlocked, the mandible can easily be advanced using a mandibular propulsor or Class II elastics.

Case 1

A 10-year-old male presented with the chief complaints of spaces between the teeth and lack of occlusal balance. Clinical evaluation showed a Class II malocclusion with a deep bite, midline deviation, and maxillary atresia (Fig. 2).

Orthodontic treatment began with an orthopedic appliance, followed by Bioprogressive therapy. The appliance described above was used for six months to open the bite (Fig. 3). Treatment was completed at age 14 (Fig. 4).

Case 2

A 27-year-old female presented with the chief complaint of a lack of occlusal balance (Fig. 5).

The Equiplan-Quad Helix combination was used for eight months to resolve the deep bite (Fig. 6). Complete orthodontic treatment lasted two years (Fig. 7).

Discussion

Special attention needs to be paid in a deep-bite case to the patient's developmental stage and to a differential diagnosis of the skeletal and dental components^{2,3}. As Moyers pointed out, a deep bite should not be considered a separate entity, but a part of the overall malocclusion.⁴ In cephalometric analysis of deep bite, the palatal, mandibular, and occlusal planes tend to be parallel, with a deficient gonial angle.⁴ Skeletal deep bite is further characterized by excessive strength of the anterior oral muscles, a horizontal growth pattern, deficient facial height, an overly long



Fig. 5 Case 2. 27-year-old female with deep bite before treatment.



Fig. 6 Case 2. Fixed appliance used with Equiplan-Quad Helix combination.



Fig. 7 Case 2. After two years of treatment.

posterior cranial base, and a brachycephalic mandible.⁵

When dealing with deep bite in growing children, the ideal growth pattern should first be stimulated with functional orthopedic appliances as appropriate to each patient, as was done in Case 1.

Conclusion

The Equiplan-Quad Helix appliance can be used successfully in patients of any age with dental deep bite, in growing patients with skeletal deep bite, and when treating Class II malocclusion with deep bite. Its main advantage is that the fixed Quad Helix expands the palate at the same time that the occlusal plane is unblocked, so that

orthodontic movements can be performed without interference. Unlike many appliances used to open deep bites, it cannot be removed by the patient. Thus, the time required to correct the deep bite can be reduced to an average of only about six months.

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