



## CLINICAL COMPARISON BETWEEN CARRIERE MOTION AND D-BAR SYSTEMS AS DISTALIZING DEVICES IN GROWING PATIENTS

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### AIMS

Carriere Motion and D-bar are compliance-dependent distalizing devices. The aim of this study was to compare the mentioned appliances in terms of efficacy and effectiveness.

### MATERIAL AND METHODS

The study sample consisted of 8 patients, aged 12.2 +/-1.1 years, with a normodivergent skeletal pattern and a symmetrical Class II malocclusion (5 patients with cusp-to-cusp Class II and 3 patients with full Class II). Each patient underwent treatment with a D-Bar on one upper hemi-arch and a Carriere Motion appliance on the opposite hemi-arch. The following parameters were analyzed by means of statistical evaluation (T-test; p-value<0.01): further dental effects beyond distalization, treatment duration, clinical management and patient perception.

### RESULTS

Both D-Bar appliance and Carriere Motion determine a good correction of the Cl. II malocclusion and have a similar treatment time to obtain a molar Cl.I relationship. The strength of D-Bar is associated to the clear reduction of the orthodontic treatment time in the second phase, which is provided by its best control on the molar and canine position. Specifically, D-Bar generates greater force thanks to a more mesial position of the hook. Its higher rigidity results in a reduction of undesirable extrusion of the canine, which equals to  $0.2 \pm 0.1\text{mm}$  ( $p=3.31 \times 10^{-4}$ ) against  $0.9 \pm 0.8\text{mm}$  for CMA side ( $p= 3.98 \times 10^{-4}$ ) and only), and buccal torque of the canine ( $0.5 \pm 0.6\text{mm}$  for CMA side ( $p=4.54 \times 10^{-3}$ ) and  $0 \pm 0.1\text{mm}$  for D-Bar side ( $p=7.21 \times 10^{-4}$ )). Also a lowering of the molar crown palato-buccal torque has been shown (i.e. reduced coronal tipping:  $0.7 \pm 0.68\text{ mm}$  for CMA side ( $p=6.11 \times 10^{-3}$ ) and  $0.4 \pm 0.2\text{mm}$  for D-Bar side ( $p=4.98 \times 10^{-3}$ )).

The D-Bar appliance offers greater flexibility given its two separate components (base and bar), which facilitate easier positioning and enable to replace the bar with one of a different size during treatment. Additionally, it can be customized to favor adaptability to canine position. Another key point of its design is offered by its reduced thickness, thanks to which it provides greater comfort for the patient.

### CONCLUSIONS

Both distalizing bars lead to an adequate correction of Cl.II malocclusion, but the D-Bar system outperforms Carriere Motion in terms of molar torque and canine extrusion control with notable advantages for the overall treatment.

### REFERENCES

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