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## **DISTALIZATION OF MAXILLARY MOLARS USING PENDULUM AND FAST BACK APPLIANCES: CLINICAL CASES**

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### **Summary**

Distalization of maxillary molars is an important procedure in orthodontics, used to create space for teeth by correcting crowding, or to improve Class II malocclusion. The Pendulum and Fast Back appliances are two effective solutions for fixed distalization that do not require much patient cooperation. The Pendulum uses forces placed on the hard palate to distalize the molars (posterior), while the Fast Back offers a more controlled mechanism and faster distalization. This article presents two patient cases, illustrating the clinical use, results, and advantages of each appliance, providing a detailed analysis of their effectiveness and comfort.

### **Abstract**

Distalization of molars is a fundamental orthodontic technique for creating space, correcting dental occlusion, crowding, and Class II malocclusion. The article reviews the use of fixed orthodontic appliances of the Pendulum and Fast Back types for distalization of maxillary molars. Two clinical cases illustrate the effectiveness of these appliances in creating space and improving dental relationships. The results show that both appliances provide successful treatment, while the choice of appliance should be based on the individual needs of the patient.

### **Introduction**

]Class II malocclusion or dental crowding are common orthodontic problems that often require distalization of maxillary molars. Effective treatment can avoid the need for extractions and improve dental aesthetics and function. Fixed distalization with Pendulum and Fast Back appliances is a reliable solution, providing stable and predictable results. Appliances used

### **Pendulum Appliance**

The Pendulum appliance is a fixed device your orthodontist puts inside your mouth to push your upper molars back—no need to worry about keeping up with headgear or rubber bands. Hilgers came up with it back in 1992 to tackle Class II bites and crowded teeth. The whole thing sits on your hard palate, held in place by an acrylic button. On each side, special TMA springs press gently but steadily against your first

molars, moving them backwards.



*Pendulum Appliance*

### **How It Works**

Those TMA springs do most of the work, pushing your molars toward the back of your mouth with steady pressure. The acrylic button and your premolars hold everything steady, so other teeth don't start shifting around by accident. As long as your orthodontist keeps an eye on things, your molars move back without much tipping or turning.

### **Why Use It?**

You don't have to remember to do anything—unlike with headgear.

It can move your molars back by 3 to 5 mm, which is usually enough for moderate cases.

It's simple, easy for the lab to make, and creates space for crowded front teeth.

### **What's the Downside?**

Sometimes the premolars get pulled forward a bit, which isn't ideal.

It can irritate the roof of your mouth.

If your orthodontist isn't careful, your molars could tip too much.

It's not the best pick for serious skeletal Class II problems—those need something stronger.

### **When Do You Use It?**

Fixing Class II bites.

Making room for crowded teeth without pulling any out.

When you can't count on the patient to wear removable stuff.

### **Clinical Case**

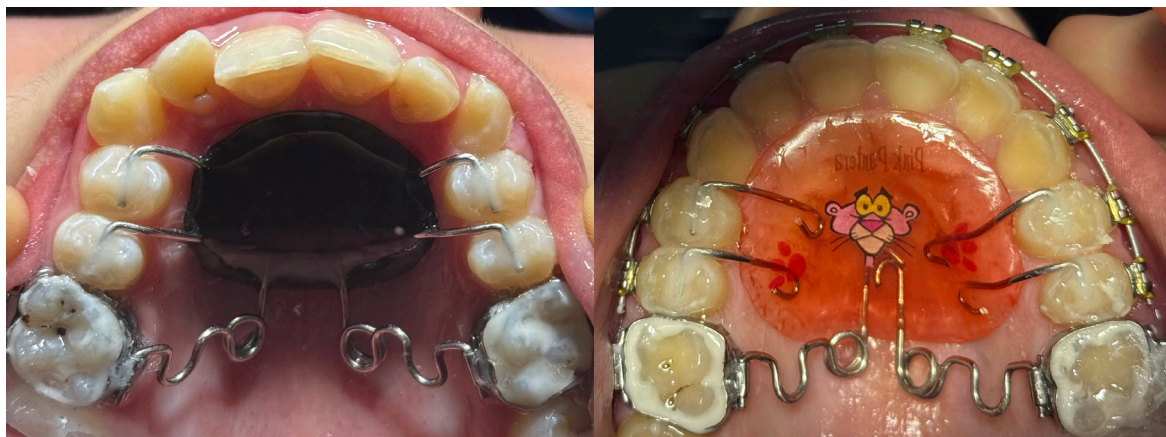
This case involves a 13 year old patient who presented with a Class II on the upper arch, along with lim-

ited space for proper alignment of the posterior teeth. To address this I chose to use a Fast Back appliance to achieve controlled molar distalization.

The appliance was activated and monitored for three months. During this period, the molars moved into Class I. Once the distalization phase was completed and a stable Class I was achieved, a Nance Button was placed to preserve anchorage and prevent the molars from drifting forward again. At the same time, fixed brackets were bonded to continue with alignment and leveling of the dentition.



*Pendulum Appliance before and after 4 months*



*Pendulum Appliances right after cementation*

### **Fast Back Appliance**

The Fast Back appliance is another option if you need to move your upper molars back but don't want to count on patient cooperation. It's got a spring-loaded mechanism that delivers a steady, controlled push, so your molars move faster and with more precision than with the Pendulum.



*Fast Back Appliance*

### **How It Works**

It uses pre-activated springs or screws to push the molars back. The design covers the palate and uses your premolars for extra anchorage, so things stay put. You can adjust the force to fit the patient.

### **Why Use It?**

It works faster than the Pendulum thanks to its more efficient force delivery.

You get more control—less unwanted tipping or movement.

Again, you don't have to rely on the patient to do anything.

It works for both mixed and permanent teeth stages.

### **What's the Downside?**

It's a bit more complicated to make and costs more because of all the parts.

You have to adjust it carefully and keep a close watch to make sure nothing goes off track.

### **When Do You Use It?**

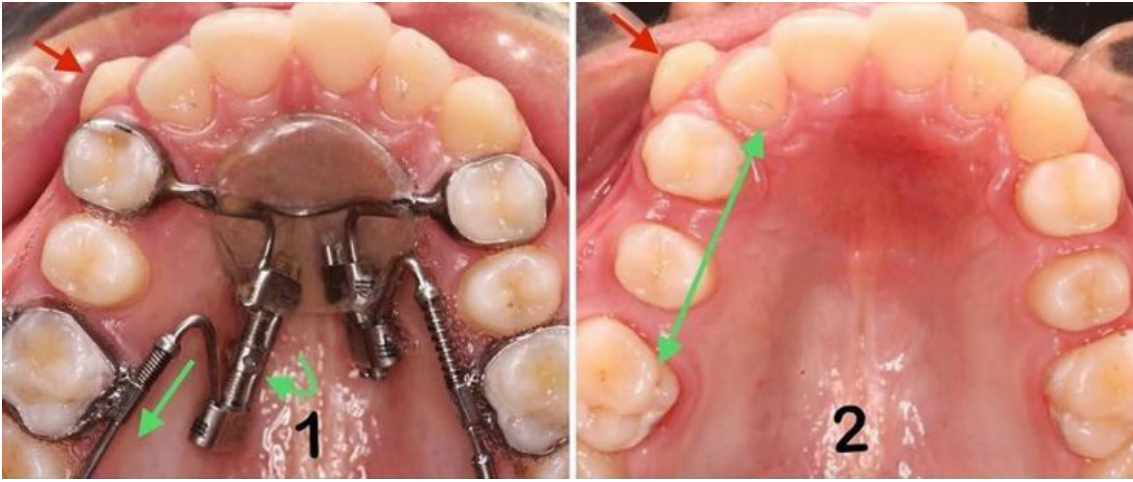
When you need to fix a Class II bite fast.

For mild to moderate crowding.

For patients who can't or won't use headgear or other devices that need their cooperation.

### **Clinical Case**

This case involves a 13 year old patient who presented with a Class II on the upper arch, along with limited space for proper alignment of the posterior teeth. To address this I chose to use a Fast Back appliance to achieve controlled molar distalization. The appliance was activated and monitored for three months. During this period, the molars moved into Class I. Once the distalization phase was completed and a stable Class I was achieved, a Nance Button was placed to preserve anchorage and prevent the molars from drifting forward again. At the same time, fixed brackets were bonded to continue with alignment and leveling of the dentition.



*Fast Back Appliance before and after 3 months of using it*



*Nance Button to keep anchorage of the upper molars*

## Discussion

Molar distalization remains one of the most widely used techniques in contemporary orthodontics for managing Class II malocclusions and resolving maxillary crowding without resorting to extractions. Both the Pendulum and Fast Back appliances belong to the category of fixed, non-compliance-dependent distalization systems, which makes them particularly suitable for young patients and adolescents where cooperation may be inconsistent. The two clinical cases presented in this article demonstrate how these appliances can produce efficient and predictable results when applied in appropriately selected cases.

The Pendulum appliance, used in the first case, is known for its simplicity, ease of activation, and relatively gentle force system. Its TMA springs provide continuous distalizing force that promotes a steady posterior movement of the molars. In this patient, the Pendulum achieved correction of a unilateral Class II relationship within four months, resulting in a Class I molar position and improved midline alignment. This outcome reflects the advantages documented in the literature, which highlights the Pendulum as an appliance that balances effectiveness with minimal need for patient compliance. Although some degree of anchorage loss is always possible, careful monitoring and timely adjustments kept such effects to a minimum in this case.

In contrast, the Fast Back appliance used in the second case offers a more controlled biomechanical system, often enabling faster distalization with reduced tipping of the molars. Its screw-driven or pre-cal-

brated force mechanism allows for precise adjustment of the distalizing force, giving the clinician better control over the tooth movement. In this patient, molar distalization was completed in just three months, successfully moving the molars from a Class II to a Class I position. Following the completion of distalization, the placement of a Nance button was essential in maintaining the distalized molars and preventing relapse. With anchorage secured, brackets allowed for continued leveling and alignment, ensuring that space gained was effectively utilized in the next stages of treatment.

These two cases illustrate how the choice between the Pendulum and Fast Back appliances should be made based on the specific characteristics and needs of each patient. Factors such as severity of malocclusion, skeletal pattern, patient age, desired treatment speed, and anchorage considerations all play an important role. The Pendulum may be ideal in situations requiring moderate distalization with simpler mechanics, whereas the Fast Back can be preferable when more precise control or faster results are required.

Beyond their differences, both appliances share significant advantages. As fixed appliances, they remove the variability associated with patient compliance, ensuring that treatment progresses reliably. They also provide a viable alternative to extractions in many cases, helping maintain dental arch integrity while correcting malocclusion and improving facial esthetics. Moreover, they can be combined effectively with anchorage reinforcement devices such as the Nance button, as demonstrated in the second case, to preserve the achieved results before transitioning to full fixed appliances.

## Conclusion

The use of Pendulum and Fast Back appliances for molar distalization is effective, safe, and provides stable results in the treatment of patients with dental crowding or Class II malocclusions. Appliance selection should be based on individual patient needs, clinical preferences, and regular monitoring. Clinical photographs demonstrate noticeable changes in molar position and the creation of dental space, improving both function and esthetics. Fixed distalization is a reliable orthodontic alternative that does not require high patient compliance.

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