# The Pendulum Appliance-25 years later

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The Pendulum Appliance was introduced to the orthodontic profession by Dr. James Hilgers in 1992. It focused on a simple palatal and tooth borne appliance that could distalize upper molars in a rather rapid fashion. His article stressed the need for such appliances in order to treat cases successfully in a social environment where compliance is waning. In the 25 years since this article was written, numerous other molar distalizers have been introduced into the sphere of orthodontic therapy. After this period of time several lessons have been learned about the use of the pendulum and its family of related appliances.

**1. Case selection is all important**

Due to the rapid distal movement of the upper molars into the posterior wedge of occlusion, there is a tendency to prop the bite open, counter-rotate the mandible at times induce

functional problems (eg. tongue thrust) that may be difficult to resolve. This is especially apparent in weak muscular patterns (dolicho-facial types). The appliance works very effectively in stronger muscular patterns (meso-facial and brachy-facial types) that are not as fragile and tend to counteract some of these negative side effects. *The lesson: Ideally only use molar distalizers in deep overbites with strong compensatory musculature.*

**2. Treatment timing is crucial**

Once the upper second molars are completely insitu distalization of the upper first molars becomes more difficult. The ideal treatment time would begin before the upper second molars are completely erupted. The first. second and third molars are tipped back and distalized in their normal fan-shaped eruptive pattern. Clinicians have shown that it is possible to also distalize second molars with double springs or even extracting upper second molars if there are viable

erupting third molars. *The lesson: The ideal time to distalize upper first molars is before the upper second molars have completely erupted.*

**3. Anchorage considerations are important**

Just as the distal movement of the upper molars is very rapid (3 months on average), so too is the rebound if adequate anchorage is not initiated at the moment of appliance removal. These include use of a Quick-Nance appliance and placement of an upper utility arch stopped against the upper first molar tubes. In recent years mini-screws have been utilized in various manners to anchor the distalized molars.

*The lesson: Utilize developed techniques to fully anchor the upper molar's distalized position the moment the pendulum appliance is removed.*

**4. Utilize inter-septal periodontal fibers to facilitate movement**

It has been shown that if the upper molars can be adequately distalized and proper stabilizing anchorage is used, the upper buccal segments will float distally through the tug of inter-septal periodontal fibers. This implies patience. If the upper molars are held in their distalized positions and the upper buccal segments are freed and not impeded by archwires or other conflicting mechanics, distal movement of the upper buccal segments will occur naturally over a 6 to 9 month period. *The lesson: Patience and mechanics that allow the upper buccal segments to float distally is an important part of overall Cl II correction.*

**5. Newer iterations of the Pendulum Appliance have improved its efficacy.**

As clinicians become more versed in the nuances of the pendulum appliance, new iterations that work more efficiently and predictably are being developed. Once such appliance developed by Dr. F.J. Napee in France uses a single mini-screw

in the maxillary midline to anchor a small Nance button. In that way it is possible to distalize the upper first molars and buccal segments simultaneously without worry about the reciprocal mesial movement of the anchor teeth that occurred with Hilgers original appliance. *The lesson: upper molar distalization is a very viable treatment alternative if proper treatment guidelines (listed above) are followed.*