

# PALATAL ANCHORAGE: WHAT'S OLD IS NEW AGAIN

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**T**he ability to correct a Class I dentoalveolar malocclusion is vital in orthodontic therapy. In most instances, Class II dentoalveolar malocclusions possess very limited skeletal dysplasia, hence, mitigating the need for surgical intervention or functional appliances for growth modification. Conventional armamentarium for successful correction of Class II dentoalveolar malocclusions generally includes one or a combination of headgear appliances, elastics, removable distalizing appliances or the extraction of teeth. In employing conventional treatment methods, it becomes obvious that patient cooperation is paramount to success. When patient cooperation and compliance wain, Class II correction of a pure dental etiology is usually futile.

The esthetics of appliances such as the headgear, social pressure for acceptance and overall inconvenience, can deter patients from using various appliances. It is, therefore, imperative that the orthodontist have additional means of successfully correcting the Class II dentoalveolar malocclusion in the absence of patient compliance.

Utilization of palatial anchorage has gained interest as an effective means of molar distalization. The incorporation of a Nance button to improve anterior anchorage thus greatly improves the ability to distalize molars. To this end, the Jones Jig, which incorporates a Nance button, has resurfaced as a very effective appliance for molar distalization. This appliance, in addition to excellent distalization of molars, has the added advantage of requiring no patient cooperation. Thus, the Jones Jig may be used very successfully in the non-compliant patient for ideal treatment of Class II dental malocclusions.

Palatal anchorage is an important form of anchorage and an effective means of molar distalization. By incorporating palatal anchorage into the treatment planning for a Class II dentoalveolar malocclusion, the clinician is able to prevent the anterior teeth from either further proclining or moving at all. As a result, the clinician can more effectively apply distalization forces to the molars.

The Jones Jig appliance makes use of the morphology of the palatal vault to offer resistance to distal forces. By placing a large segment of acrylic well adapted to the lingual incline of the palate, a reliable anchorage unit is produced. To distalize the maxillary first molars (16, 26), the anchorage unit utilizing the Nance button requires attachment to the maxillary second bicuspid (15, 25) or, to the first bicuspid, if the second bicuspid are not available.

This can be accomplished by bandfitting the second bicuspid and taking an alginate impression. The bands are placed in the alginate which is then poured in stone. A framework is soldered to the lingual of the bands with .036 wire. Using acrylic, the Nance button is formed at least 3 mm from the dentition. The procedure is completed by cementing the completed anchorage unit into place, and by checking that the acrylic is well adapted to the palate and produces no blanching of palatal mucosa (Figure 1).

Compressed nickel titanium coil is used as the force component to deliver reciprocal force between the maxillary second bicuspid and first molars. The advantage of using nickel titanium coil as compared to stainless steel coil lies mainly in its long gentle action, making it less likely to tax the anchorage. A round .036 wire is used as the guidance template (Figure 2); sol-

does this compress the coil to place a gentle force reciprocally on the second bicuspid and first molar, it also engages the palatal anchorage unit. As the first molar moves distally, the coil will slowly decompress, dissipating most of its energy. It will require re-activation (re-compression) approximately every five to eight weeks. A 5-6 mm distal molar movement can be accomplished in a four to eight month period based on our findings. (This system is available from American Orthodontics and is known as the Jones Jig. U.S. Patent #5064370).

Once the teeth have been distalized to the desired position, a stopped arch (to the first molars), without engaging the bicuspids, should be placed while removing the Nance button. This allows the bicuspids to migrate distally following the molars by means of transeptal fibre action.

Indications for using the Jones Jig include poor patient cooperation, and better esthetics than appliances such as headgears. Dental, as opposed to orthopedic forces, are achieved.

Contraindications to using the Jones Jig include:

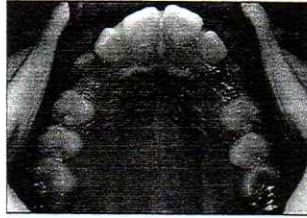
- a) moderate or severe skeletal dysplasia;
- b) excessive vertical facial skeletal development;
- c) the requirement for more than 5-6 mm of distal molar movement;
- d) poor palatal morphology;
- e) severely rotated maxillary first molars.

### CLINICAL CONCERNS

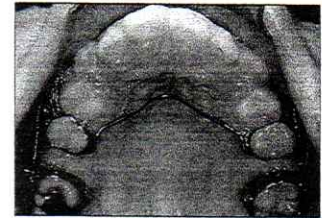
Clinical concerns regarding the Jones Jig include:

1. Impingement of palatal tissue under acrylic button due to:
  - a) loss of anchorage as a result of excessive compression of coil spring
  - b) poor design of palatal anchorage unit
  - c) improper cementation of Nance button.
2. Continued breakage of ligature activation wires. (If necessary use a double ligature tie.)
3. Presence of erupted second and third molars. (If necessary to remove either the second or third molars.)
4. Transient speech impediment.

Photos represent typical molar distalization produced by the Jones Jig.



Original



After four months

### DISCUSSION/CONCLUSION

The Jones Jig is a useful appliance which provides the benefits of molar distalization, patient comfort, and esthetics, while requiring no patient cooperation. Furthermore, this appliance is cost effective. The ability to distalize molars reduces the need to extract teeth in many cases. For these reasons, the Nance button and its incorporation with the Jones Jig has again become popular. As in all orthodontic correction, the critical factor lies in diagnosis. With proper diagnosis, one is able to ascertain whether or not the Jones Jig will be helpful in providing successful treatment of Class II dentoalveolar malocclusions without creating deleterious side effects. No single form of therapy or appliance can correct all orthodontic situations; however, the Jones Jig has been found to be highly tolerated by patients who find other conventional appliances to be intolerable.

Since this appliance provides only dentoalveolar correction, it should not be used to effect corrections where a skeletal dysplasia exists. Additionally, there are limits to the extent of molar distalization ranging from 5-7 mm on average from our empirical findings and, thus, the limitations of the appliance should be respected. ♦

### REFERENCES

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2. Moyers, R.E.; Handbook of Orthodontics, 3rd Edition (1975).
3. Jones, R.D.; White, J.M.; J. Clin.Ortho. 26:661-664, (1992)..

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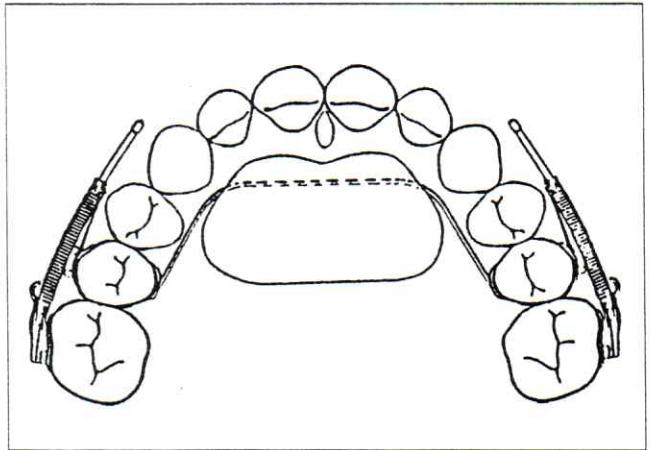


Figure 1

dered to it is an .016 offset wire. Both wires are inserted into the headgear tube and archwire tube simultaneously. This double insertion design minimizes the amount of tip and rotation produced by the compressed coil as it decompresses. The guidance wire should be adapted both occluso-gingivally and mesio-distally so as to provide maximal comfort for the patient.

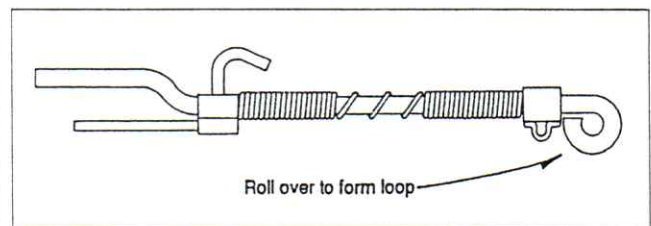


Figure 2

A compression tube with a welded eyelet completes the components of the molar distalization appliance. This tube slips onto the .036 guidance wire after the nickel titanium coil has been inserted onto the guidance wire. Bending the anterior portion of the guidance wire into a loop will make it more comfortable for the patient and will not irritate the lip and cheek tissues (Figure 3).

The active force is initiated by compressing the nickel titanium coil. This is achieved by threading a .010 ligature wire through the eyelet of the compression tube, pulling the eyelet distally until the coil is almost fully compressed and then ligating the ligature wire to the bracket on the second bicuspid band. Not only

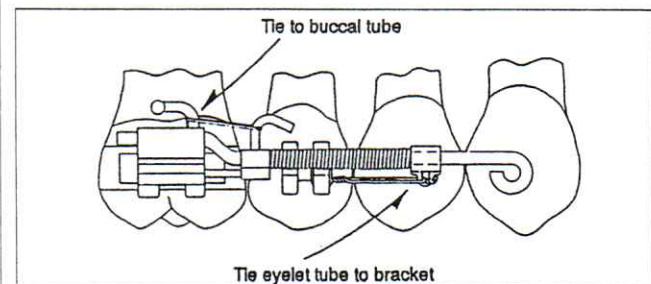


Figure 3 (headgear gingival illustrated)