Blue Grass Thumb Sucking Deterrent

By Donal Inman, CDT

"Sometimes, the use of fixed or removable corrective orthodontic appliances will be necessary and habit breaking components may also be added to these..."

Thumb and finger sucking habits as well as tongue thrusting, have adverse effects on existing and developing dentition. Some examples of what these "bad" orthodontic forces can do are flared spayed (buck) anterior teeth, anterior open bites and unilateral or bilateral posterior open bites.

Eliminating the bad habits by use of intra-oral habit appliances commonly results in spontaneous correction of the dentition and the alveolar process. Sometimes, however, the use of fixed or removable corrective orthodontic appliances will be necessary. Habit breaking components may also be added to many fixed and removable orthodontic appliances.

These appliances discourage habits by blocking the access of the tongue or fingers to the affected areas. Cribs or gates are used to accomplish this. Other types use prongs that make patients aware of the tongue thrusting or the sucking of their fingers, thumbs or lips. Palatal cribs work by not allowing suction to develop between the thumb and palate, thus denying gratification and reducing the patient's desire to thumb suck.

Newer designs retrain the tongue, using tongue toys. The Blue Grass roller replaces the urge to thumb suck, with the harmless habit of playing with an introral roller. Because the patient cannot both thumb suck and play with the roller at the same time, the bad habit is replaced by the harmless habit, this is called counter conditioning.[1,2,3]

Figure 1. Thumb Inman appliance. Retracts the anterior teeth while deterring thumbsucking

Figure 2. Palatal crib.

Figure 3. Thumb prongs.

The Blue Grass Roller is an eight sided Teflon roller that may be incorporated into fixed or removable orthodontic or pedodontic appliances. It was developed by Bruce S. Haskell DMD, PhD University of Louisville and John R. Mink DDS, MSD University of Kentucky, hence the name Bluegrass.

Figure 4. Models showing anterior open bite, due to thumb and/or finger sucking and/or tongue thrusting.

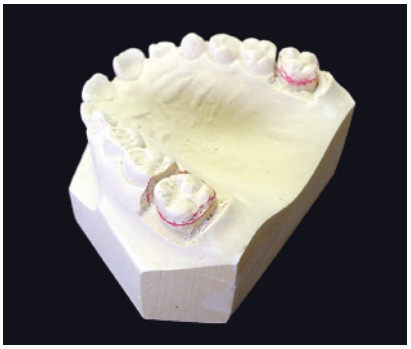

Figure 5. Prep the model for fitting of bands to 1st permanent molars or deciduous 2nd molars if the 1st molars are not present. Be careful to preserve the height of contour.

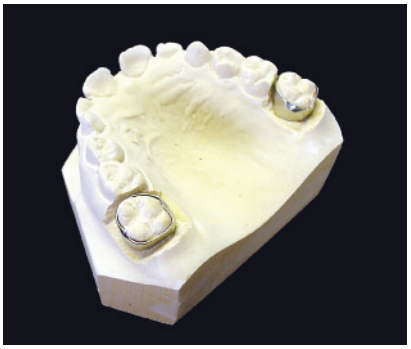

Figure 6. Adapt correctly sized bands.

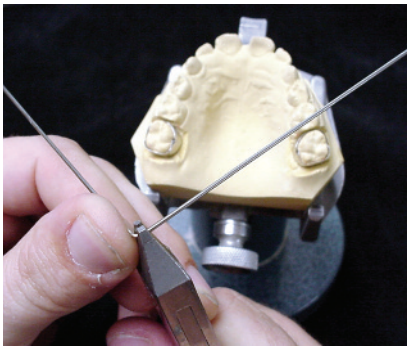

Figure 7. Using .045 (1.1-1.2mm) S/S wire, create a 90° bend.

Figure 8. The roller is available from TP Orthodontics.

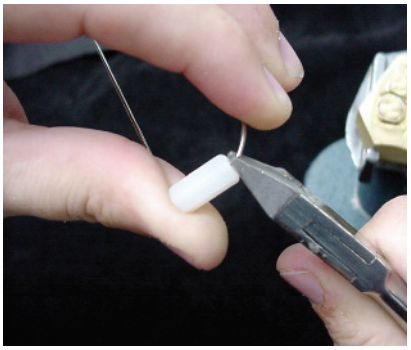

Figure 9. Slide the Blue Grass roller onto the horizontal side then trap the roller by bending the wire beyond 90°.

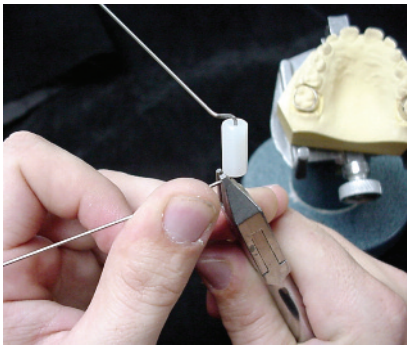

Figure 10. Allow room for the roller to spin freely. Bend both wires distal at 90°.

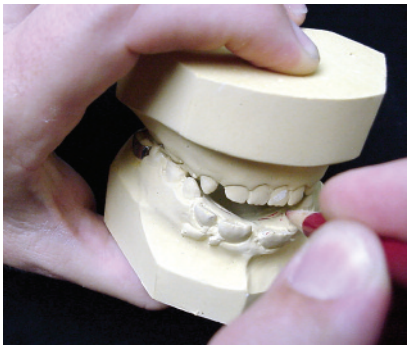

Figure 11. Check the clearance using the opposing arch and mark.

Figure 12. Model with correct anterior position marked in red.

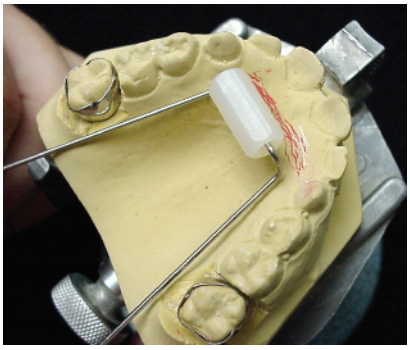

Figure 13. Adapt the distal wires to the tissue at the cingulum level allowing for future eruption of permanent dentition.

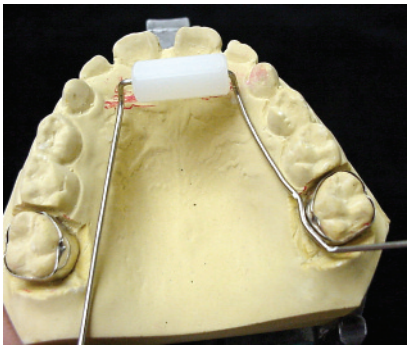

Figure 14. Bend wire to middle 3rd of the molar bands and wax into position.

Figure 15. Secure wire with wax.

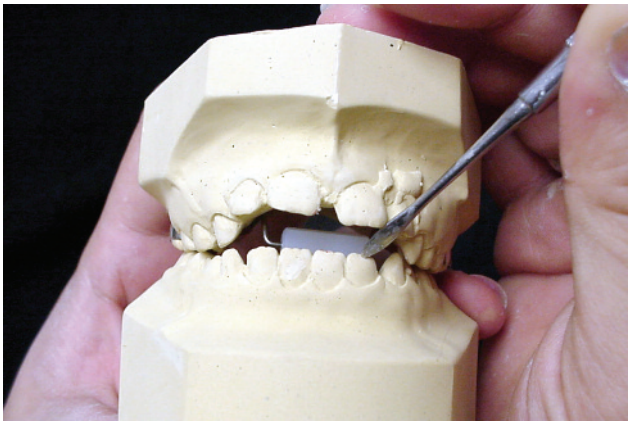

Figure 16. Check occlusion with opposing model.

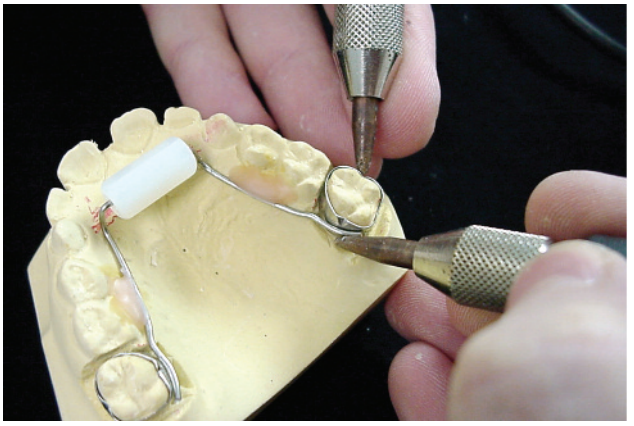

Figure 17. Spot-weld to maintain position during soldering or use plaster to hold.

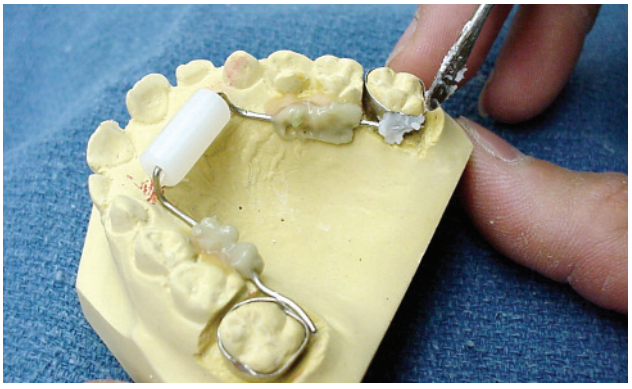

Figure 18. Protect wire with Heat Shield and add flux to the junction of the wire and band.

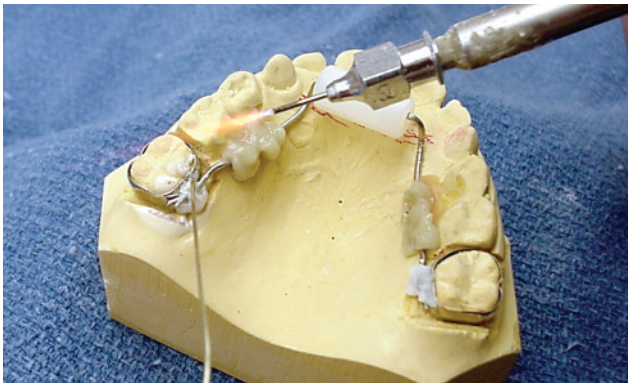

Figure 19. Solder the wire to the band, being careful not to overheat the appliance.

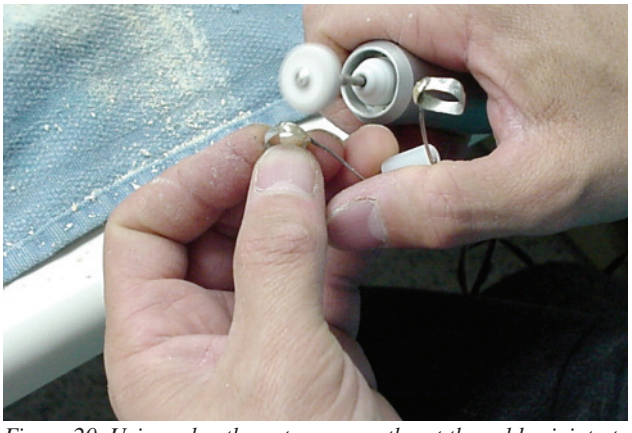

Figure 20. Using a heatless stone, smooth out the solder joint at the molar band.

Figure 21. High shine the solder joint as well as the .045 wire. Do not touch the Teflon roller or it will mark and be damaged.

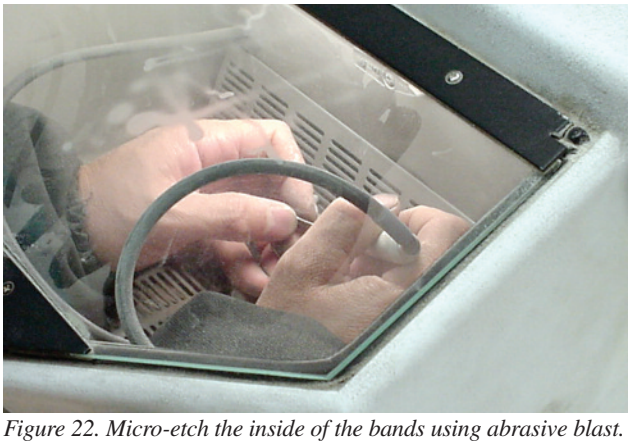

Figure 22. Micro-etch the inside of the bands using abrasive blast.

Figure 23. Steam clean to remove any polish.

Figure 24. A properly constructed Blue Grass appliance fitted to an acrylic model. The appliance should spin freely, not interfere with occlusion and allow as much room for the tongue as possible. It is also very important to allow room for the remodeling of the Premaxilla and correction of dentition.

Figure 25. Alternate view

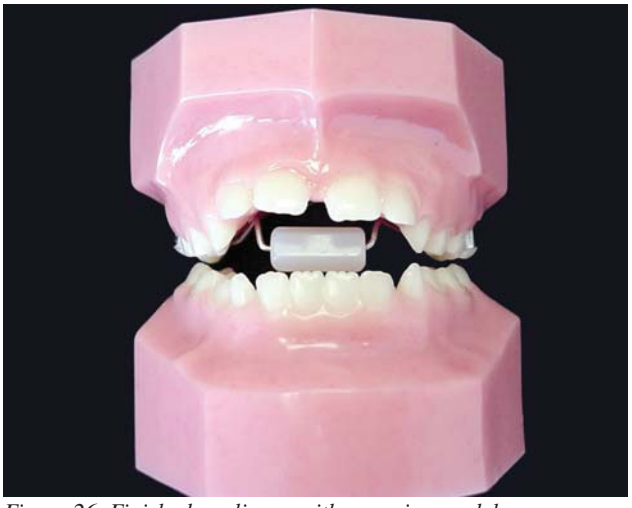

Figure 26. Finished appliance with opposing model.

Conclusion

Habit appliances are very effective and can eliminate or reduce future orthodontic treatment time. They are relatively easy to fabricate and profitable for the laboratory and a valuable tool for the clinician. Children seem to adapt quickly to the appliances and when properly constructed, discomfort is minimal. Treatment time will vary from patient to patient and an occasional persistent habit will need to be reevaluated if progress is not made. There are many different designs and they all have their specific treatment indicators. It is necessary to become familiar with the different types of habit appliances and learn their individual pros and cons.

Acknowledgement

I would like to thank Igor Slootsky for help in writing this article and the honour of his friendship.

Teflon is a trademark of E.I. du Pont de Nemours and Co, Inc, Wilmington, DE.

Bluegrass rollers may be purchased from TP Orthodontics Australia on 1800-643-055 or (03) 9342-3200.

Bibliography

1. Haskell, B and Mink, J. An aid to stop thumb sucking: the "Bluegrass" Appliance. Pediatric Dentistry, Volume 13, No. 2, 1991.
2. Baker, C. The Modified Bluegrass Appliance. J.S.S.P.D. Volume 4, No. 3, 1988.
3. Baker, C. The Modified Bluegrass Appliance. JCO XXXIV (9), No. 3, 2000.

About the author

Donal Inman, CDT began his career in orthodontics in 1976. He became a CDT in 1985. Don is the President of Inman Orthodontic Laboratories Inc. and also owns and operates Space Maintainers Laboratory of the South East. He developed the Inman Aligner, the Inman Family of Appliances and the Inman Power Component. For his efforts, Don was awarded the 2002 and 2004 Harry Hagman Inventor Award from the National Association of Dental Laboratories, and in 2003 he was presented with the Governor's New Product Award in the small company division from the Florida Engineering Society. His goals are to move dental technology from a trade to a profession through education and attitude.