

Preventive Sequential Stripping (or Disking) of Deciduous Teeth.

In mixed dentition cases with up to 4 mm. of incisal crowding, particularly in the lower arch, it becomes imperative to sequentially strip the deciduous canines and molars. Since the deciduous canine and both deciduous molars on each side are approximately 2.5 mm. larger on the lower and 1.4 mm. larger on the upper than the three permanent teeth that replace them¹, it becomes possible to use this extra space for crowding correction.

LOWER ARCH STRIPPING:

In the lower arch, for example, one can strip 2 mm. from the mesial of each lower deciduous canine in order to properly align up to 4 mm. of permanent incisal crowding. Since this lower incisal crowding can frequently correct within only 2 or 3 days with the Occlus-o-Guide[®] appliance, it is extremely important to do this stripping at the start of appliance wear. If it is done afterwards, the incisors can become displaced labially with the possibility of gingival recession, which can occur within only a few days. When the permanent canine begins to erupt later, the mesial of the first deciduous molar is stripped about 2 mm. to allow the larger adult canine to freely erupt in a distal direction, since it is about 1.0 mm. larger (1.04 mm. male, .73 mm. female¹) than its deciduous counterpart. As the first premolar erupts, 2 mm. from the mesial of the second deciduous molar is stripped since this tooth is about 2.6 mm. larger than the second premolar (2.64 mm. male, 2.62 mm. female)¹. The second premolar will then simply erupt by replacing the stripped deciduous second molar, which should then be about the same size as the erupting premolar.

UPPER ARCH STRIPPING:

In the upper arch, a similar condition can exist, although it is slightly more critical since the size difference between the deciduous and permanent posteriors is not usually as large as that which exists in the typical lower arch. The difference between the deciduous canine and both deciduous molars and their permanent replacements in the

upper arch is usually about 1.4 mm. (1.3 mm., male; 1.46 mm., female) while as stated previously in the lower, it is about 2.5 mm. (2.23 mm., male; 2.67 mm., female). One cannot usually strip as much in the upper arch as in the lower, so as a result, it is advisable to resist stripping in the upper, if at all possible. The primary reason for this is due to the periodic slow eruption pattern of the upper permanent canine, which is about 1.0 mm. larger than the upper deciduous canine, which can often result in maxillary crowding.

RETARDED UPPER CANINE ERUPTION:

The upper adult canine is often slow in erupting and can occur in about 30% of malocclusions. Since the adult canine is about 1.0 mm. larger than the deciduous canine (1.07 mm., male; .86 mm., female)¹, it will frequently erupt either to the labial, rotated, or at times displace the lateral, if the upper premolars have already erupted and have closed all of the additional space anteriorly that existed when the larger deciduous molars were still present. This condition can be prevented by prestripping 2 mm. from the mesial of the upper first deciduous molar and simultaneously adding 2 mm. of composite or bonding to the distal of the upper deciduous canine. In any case, it is extremely unwise to ever strip the upper deciduous canines for this reason. If upper stripping is necessary, it is always wiser to strip the deciduous molars. In the lower arch, it is very rare for the lower canine to erupt after the second premolar and consequently rarely ever presents a similar problem. Therefore, in the lower arch it is quite acceptable to strip the deciduous canines, while in the upper arch it is not.

When the adult maxillary canine is the first tooth to erupt prior to the two premolars, the occlusion almost always comes out ideally. It might be mentioned that this condition is almost always seen in an actively worn Occlus-o Guide[®] case as opposed to a passively worn, Nite-Guide[®] case (worn only while sleeping). The probable reason for this is that the active biting force possibly stimulates the early eruption of the upper adult canine that is up in tissue when the case is started or simply forcibly aligns a poorly erupting canine as it erupts. Eruption stimulation occurs, probably since the appliance is constructed to place depressive forces on the anterior teeth and not on the posteriors. It probably stimulates its eruption in a similar way that a full denture can stimulate the eruption of third molars after many years of being dormant.

If additional room is required for upper adult incisal crowding correction, the mesial of the upper first deciduous molar can be stripped about 2 mm. but no more than this since this slightly exceeds the size differential in this area (1.3 mm. male, 1.46 mm. female). It rarely complicates the case if 2 mm. is stripped, possibly due to the expansion in the arch circumference that takes place when the upper adult canine erupts ideally. When the first premolar erupts, about 2 mm. is stripped from the mesial of the second deciduous molar to allow the first premolar to erupt in a distal direction. Since the upper second deciduous molar is about 2 mm. larger than the second premolar (2.26 mm., male; 2.22 mm., female)¹, the second premolar simply slips into the slot maintained for it by the stripped deciduous tooth. This effectively maintains the distal position of the first permanent molars and prevents their mesial migration through the leeway space².

This in essence takes advantage of the initial distalized erupted position of the upper and lower first permanent molars due to the larger posterior deciduous molars. The difference between the larger deciduous and smaller permanent posterior teeth is called the “leeway space”, and is of great benefit in preventing future relapse of initially crowded cases³. It works particularly effectively with the Occlus-o-Guide[®] technique since this appliance stabilizes the labio-lingual position of the incisors⁴ while correcting the crowding which forces the tooth movement corrections to take place in a distalized direction⁵. The Occlus-o-Guide[®] maintains the integrity of the position of the lower incisors since it places restraining forces and keeps the incisors well within the sockets of the Occlus-o-Guide[®] when the patient bites in the appliance forcibly for at least 2 hours per day. The ideal arrangement of these sockets also guarantees that the decrowding of these incisors occurs in a distal direction which also forces the canines and premolars to become distalized into the leeway space as well. This same principle also occurs in the upper arch with the same efficiency.

The stripping is most effectively done with a very thin high-speed diamond tapered fissure bur. The stripping can be curved inward at the contact area⁶ which preserves the pulpal horns and can help to guide the tooth labio-lingually as well. With the Occlus-o-Guide[®] appliance in place, however, the erupting teeth are guided into an ideal occlusion in all directions. It is recommended that the stripping be done as closely to the actual need as dictated by the degree of crowding to be corrected. If it is done in

excess of the limits of the leeway space, the free eruption of the posterior teeth may be interfered with, which may result in an inability to correct the resultant shortage of posterior space. On the other hand, if the stripping is not enough to allow the mesial crowding to correct in a distal direction, the correction of this crowding will take place in a labial direction, which can cause loss of incisal gingival and bone support.⁷ The stripping in anticipation of the incisal crowding correction must be done immediately as the appliance wear is begun. If it is delayed even for a few days, the lower incisors can begin to move in a labial direction since the alignment of three or four millimeters can take place within two to three days.

Stripping lower canines when using the Nite-Guide[®] appliance is not recommended until all of the potential arch enlargement as a result of mandibular central and lateral incisal eruption has taken place. If it is done before the laterals are almost fully erupted, full arch enlargement is likely not to take place. If there is any evidence of labial gingival recession of the lower incisors as the arch is being increased, however, the lower canines should be immediately stripped rather than usually waiting for the full eruption of the lower laterals to take full advantage of all possible arch enlargement.

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References:

1. Moorees, C.F.A.; *The dentition of the growing child*, Harvard University Press, Cambridge, MA, 1959.
2. Nance, H.N.; The limitations of orthodontic treatment, I. Mixed dentition diagnosis and treatment, *Am. J. Orthod. and Oral Surg.*, 33:177-223, 1947.
3. Little, R.M.; Personal Communication
4. Pourrahimi, P.; *Cephalometric evaluation of the correction of overbite and overjet with the eruption guidance appliance, i.e. Occlus-o-Guide®*. M.S. Thesis, Northwestern University, Chicago, IL, 1982.
5. Bergersen, E.O.; Preventive and interceptive orthodontics in the mixed dentition with the myofunctional Eruption Guidance Appliance; correction of crowding, spacing, rotations, cross-bites, and TMJ, *J. of Pedod*; 12: 386-386-414, 1988.
- 6 Van der Linden.
7. Artun, J. and Krogstaad, O., Periodontal status of mandibular incisors following excessive proclination, *Am. J. Orthod.*, 91:225-232, 1987.