

**Gaining A Level Plane of Occlusion And  
Coordinated Arches with the Occlus-o-Guide®**

**The Development of the Occlusal Plane:**

It is not unusual to observe an asymmetrical plane of posterior occlusion when comparing the upper to the lower arches on one side or even from one side to the other in an individual. This might be exhibited by several teeth or even single teeth that are either over or under-erupted in comparison to other teeth in the same arch or to similar teeth in the opposing arch. The sequence of exfoliation of the deciduous canines and molars and the eruption of their permanent replacements obviously have a great deal to do with the development of this occlusal problem. A symmetrical and coordinated smooth transition of exfoliation and eruption from tooth-to-tooth posteriorly from the canine is necessary for the arch to have a level plane of occlusion. This type of ideal arch would optimally create a minimum of occlusal problems associated with prematurities, cuspal interference and TMJ complications. It must also be mentioned that an excessive overbite places a similar strain on the anterior plane of occlusion as well as limiting the free forward mandibular positioning associated with condylar growth thereby potentially creating TMJ problems.

For example, if a lower premolar supererupts unimpeded by an upper exfoliated deciduous molar and unerupted premolar, an uneven lower occlusal plane is created. The overerupted premolar erupts to a higher level than the other adjacent teeth. When the opposing upper premolar finally erupts, it is prevented from obtaining its normal occlusal level due to its interference with the already overerupted tooth in the opposite arch. (Figure 1).

**Preventing an Uneven Plane of Occlusion:**

When the Occlus-o-Guide® is worn passively while sleeping, during exfoliation and eruption of the posterior teeth (Fig. 2a), it controls the extent of eruption so that an even uninterrupted occlusal plane is developed from the canine through the second molar in all four quadrants, (Fig. 2b). It prevents vertical deviations in the eruption of posterior teeth due to the plastic interproximal between the upper and lower arches as well as modifying an excessive overbite, coordinating it with the posterior occlusal plane. It takes very little force to stop the vertical eruption of incoming teeth and guide them in any direction due to the infantile state of the periodontal fibers. In fact, a deviation in the eruption path of a premolar or canine can easily be

altered by passive nighttime wear of only one hour's duration. If a premolar or canine is erupting in an altered mesio-distal or buccal direction, the preformed socket of the appliance will guide the tooth into its proper location. It is important, however, that sufficient room is present in the arch for this positioning of the tooth to take place. When insufficient room exists for an erupting tooth, a cervical head-gear or bumper can be placed, and worn together with the Occlus-o-Guide® to obtain the proper space. The head-gear or bumper should be used initially at the beginning of Occlus-o-Guide® use so that the proper space can be created at the same time the tooth is being moved to place by the Occlus-o-Guide®.

### **Correcting Lateral and Cross-bite Problems in the Posterior Area:**

The arches are also easily readjusted laterally by the Occlus-o-Guide® appliance since there is considerable force bucco-lingually from the canine through the second premolar in any arch. This is due to the design of the appliance, since the upper and lower segments of the arch on each side are fixed by being attached to each other, and do not allow for slippage bucco-lingually between the upper and lower teeth. If there is an initial deviation between the upper and lower teeth such as a cross-bite of premolars, it is easily corrected by the Occlus-o-Guide®. When the lateral discrepancy involves the permanent molars, this lateral adjusting force is not as effective and a form of a cross-bite cleat is bent out of retainer wire (.032" or 1mm. wire), heated and placed into the appliance (Figure 3). This engages the molar at the lingual (or buccal) gingival area where the force is most effective. In fact, total posterior cross-bites in the mixed dentition can usually be corrected by a single cross-bite cleat.

Fig 1 - Showing excessive eruption of the upper right first premolar creating a disproportional premolar posterior occlusal plane from right to left.

(Tina Adamson)

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Fig 2a

Fig 2b

Fig. 3 - Shows a wire heated and inserted into the lingual flange of the appliance to place a buccal force against the first permanent molar.