

**RECOMMENDED PROCEDURE FOR CASE ANALYSIS AND  
OCCLUS-O-GUIDE® APPLIANCE APPLICATION**

***Questions to be answered on initial patient examination:***

A. *Regarding the vertical overbite:*

1. Is overbite present? How much? 3 mm or more should be corrected.
2. Will the patient wear the Occlus-o-Guide® appliance 3 to 4 hours with exercise during the day? Most overbites are easily corrected with the Occlus-o-Guide® but require daytime wear over a period of from 4 to 12 months with 3 to 4 hours active wear each day. If either the mother or child says that they probably will not wear the appliance the required amount, treatment should not be started. Those rare instances where a particular form of the overbite may be a problem in correcting are as follows.
3. Is overbite accompanied by an excessive free-way space (6 mm or more) with a laterally spreading tongue at resting posture? It will appear as if the tongue is preventing the eruption of the lower posterior segments and accompanied with what looks like ankylosed and depressed deciduous lower molars. This type of malocclusion (2% incidence) is a contraindication and the tongue position at resting posture usually prevents the needed eruption of posterior teeth in these cases. This type of case probably should be corrected with fixed appliances.
4. Is overbite accompanied by multiple spacing between most of the upper anterior teeth? If it is (1% incidence) the overbite is very difficult to eliminate until these spaces are somewhat closed (to within a cumulative amount of space between the 6 anterior teeth of 2 mm). **Recommendation:** Close the anterior spaces first with a Hawley retainer (upper or upper and lower), then proceed with the Occlus-o-Guide® to perfect the rest of the occlusion. The reason is that the incisal “interference” created with daytime exercise necessary to prevent relapse during the non-exercising resting periods is not present and the required posterior tooth eruption does not take place.
5. Is the deep overbite accompanied by an overjet that might be prevented from being corrected at the same time by a lip or tongue habit? Most frequently, cases that have a deep overbite do not have an anterior tongue-thrust swallowing pattern since this habit usually prevents the over-eruption of the lower incisors. The lower lip roll in some cases may interfere with the simultaneous correction of the overjet and overbite. When the overjet is prevented from being corrected, the incisal interference necessary for overbite correction is interfered with, and frequently the treatment progress of the overbite is slowed or prevented from taking place. This type of case should be treated with the Occlus-o-Guide® but careful patient instruction on correct swallowing without any muscular activity of the lower lip is essential as well as correct lip seal while exercising with the Occlus-o-Guide® is also important. Successful treatment routinely follows. Anterior tongue thrust patterns are referred to in the next section on overjet correction.
6. Estimate the length of time the overbite will require for correction. Generally the correction of moderate overbites (3 to 5 mm) correct at the rate of 0.4 mm per month, while the more severe overbites (over 5 mm) will correct at the rate of 0.7 mm per month.
7. Is the length of the face exceedingly long and narrow? If it is, the Occlus-o-Guide® is contraindicated due to the method of its correction of overbite. The Occlus-o-Guide® initially opens the face vertically to gain the overbite improvement, then allows the bony structures to grow around this change to bring the initial vertical morphological alteration back to within the patient’s pre-treatment relation to the norm or standard for his or her age. This initial opening of the face increases the already severe facial pattern when the

correct treatment procedure would be to reduce the length of the face. This is done best with standard fixed appliances and/or jaw surgery to reduce the length of the face.

The long face syndrome also is characterized by a very small free-way space, particularly in the posterior area. For this reason, there is greater likelihood of creating premature contact in this area when the patient bites into the appliance with the potential of causing a TMJ problem. These cases are what is referred to as steep mandibular plane angle cases (in excess of 2 S.D. or about 50° SN-Mandibular plane angle).

8. Does the patient show an excessive amount of gum tissue during speech and smiling? Do the lower incisors appear to be over-erupted while there is an excessive Curve of Spee in the lower arch while the upper (occlusal and incisal) plane appears to be either flat or normal anteroposteriorly? The Occlus-o-Guide® can easily correct the overbite in these cases but will probably do so by possibly depressing the lower incisors and erupting the lower posterior teeth. This will not aid in improving the display of gingival tissue in the upper arch while smiling. The Occlus-o-Guide® will usually correct the arch that varies furthest from the norm. In other words, in this case it will not depress the upper anterior teeth, which would improve the appearance of the smile. Fixed appliances, however, can be manipulated to selectively depress a particular arch and thereby reduce the gingival that shows in the maxilla. Surgical correction also is possible for this esthetic change. On the other hand, if the upper incisors are elongated beyond the level of the upper posteriors, the Occlus-o-Guide® would probably improve the esthetics by depressing the maxillary incisors, however, its mode of action is not under the control of the doctor, as fixed appliances would be in this particular situation. If there is no overbite in the same above case, the Occlus-o-Guide®, if used to correct other problems, would obviously not have any effect on the level of the upper incisors and their gingival because no alteration of the incisal level would take place.
9. Is the overbite present only because of the level of the upper central incisors while the upper lateral incisors are above the occlusal level where they should be, (in other words, are the lateral incisors in an open bite relation with the lower incisors)? The Occlus-o-Guide® will work to depress the upper centrals but is incapable of physically lowering the level of the upper laterals. If it is deemed necessary to erupt the upper laterals to create the proper esthetic result and the only other problem requiring correction is the elongated centrals, it is probably easier to use a limited amount of fixed appliances to correct the minor problem. If the Occlus-o-Guide® can effectively save time by correcting other problems also, then the Occlus-o-Guide® use can be followed by a limited fixed appliance at the end of the Occlus-o-Guide® treatment with a circumferential fiberotomy on the four incisors to help maintain their level to one another.
10. Is there no facial or standing height growth remaining and the overbite is in excess of 5 mm.? There is a strong possibility of relapse in these cases since the Occlus-o-Guide® appliance depends on facial growth for optimum correction. Males have a greater chance of success than females from 15 up to 39 years of age. However, individual cases can vary and the use of a hand-film and close monitoring during treatment with the Occlus-o-Guide® is recommended. The more severe the case and the older the patient (beyond the pubertal spurt at 14 in females and 16 in males), the poorer the retention prognosis.

**B. Regarding the horizontal overjet:**

1. Is overjet present? How much? 3 mm or more should be corrected.
2. Will the patient wear the Occlus-o-Guide® appliance 3 to 4 hours with exercise during the day? Overjets are generally easier to correct than overbites and can frequently correct with less cooperation than with overbites. If the mother feels that cooperation will be lacking, the recommendation would be to not use the Occlus-o-Guide® for the correction.
3. Is there a severe overjet but with no accompanying overbite? In other words, is there a space between the lower incisal edges and the palate where the tongue fits into during swallowing? These cases frequently will only partially correct with the Occlus-o-Guide® even with maximum cooperation. It is recommended

that the parent be warned that the appliance may not completely correct the problem, and a limited number of fixed brackets and/or bands might be placed with constant elastic wear to overcome tongue thrust forces, and tongue thrust therapy by a myofunctional therapist may be necessary. It is advised that the Occlus-o-Guide be started on its own until no more progress is seen over a two month period, then the elastic force should be initiated to gain the necessary force to correct the problem.

4. Is there a severe overjet (more than 5 mm) with upright upper incisors with or without spaces? The parent should be informed that some braces may be necessary at the end to torque the upper incisors since there is a good chance they will tip lingually during distal movement. The Occlus-o-Guide® should be allowed to make its complete correction before making an appraisal concerning incisal torque and its necessity.
5. Is there a severe overjet (over 5 mm) and minimum space that is required for an unerupted permanent tooth or teeth? It is recommended that the overjet be corrected only after these unerupted teeth are erupted into place, since the correction occurs so rapidly that a tooth or teeth may be impacted by the closure of this space. A cervical headgear against upper molar bands can be used in combination with the Occlus-o-Guide® to ensure that the space remains. Another way to preserve a space is to place a 0.020" round wire from the buccal to the lingual margin of the Occlus-o-Guide® at the gingival level of each of the adjacent teeth on either side of the space. Slow erupting maxillary canines are the most likely teeth for this problem.
6. As in #10 under overbite, the same growth principles apply for the correction of overjet in excess of 5 mm.

**C. Regarding crowding and rotations:**

1. You should figure out how much space is required for crowding and rotations. Is there enough? If there is space, the Occlus-o-Guide® usually has no difficulty in properly aligning the teeth. If there is not enough room and if teeth are going to be moved into adverse positions due to the correction of the crowding or rotations, the Occlus-o-Guide® should not be used in these cases, or only used in conjunction with other devices capable of creating the necessary space.
2. What is the gingival level on the labial surfaces of the lower incisors? If it is lower and there is slight crowding with no space for the teeth, either do not use the Occlus-o-Guide®, or use it with caution -- measuring the level of the tissue at each appointment. In the latter case, it would be advisable to use a mandibular labial bumper against the lower first permanent molars at the same time the Occlus-o-Guide® is being used. In this way, space can be created for the shortage as the teeth are being straightened.
3. Measure the labio-lingual distance of the anterior segment of the mandible around the roots of the lower incisors with your fingers, and feel if the labial surface of the lower incisor roots is easily discernible. If these measures seem thin, one has to be very cautious if there is any crowding with little room for their correction. When the face is long and thin one must be particularly observant of this tendency. Gingival recession is very easy to produce in these cases. If there is any crowding without space, one should not use the Occlus-o-Guide® -- specifically where a low gingival is already observed.
4. Are the lower (or upper) canine root ends inclined buccally where it would help to lingual root torque the canine roots to properly upright these teeth? If this is the case, the canines should be torqued before the Occlus-o-Guide® is used with fixed appliances to avoid creating potential for gingival recession.
5. Are there deciduous lower (and upper) molars still present? They do provide additional space for crowding and rotations in the lower arch. Extraction of the first deciduous molars before using the Occlus-o-Guide® can provide an advantage in allowing the incisors to uncrowd without being thrown labially which can cause labial gingival and bone loss. If further space is required, the second deciduous molars can be extracted. A lower bumper can also be used in these cases, particularly if the lower second molars are erupting at the same time. The bumper prevents the forward migration of the lower first permanent molars. However, in most cases the active daily use of the Occlus-o-Guide® is usually enough to hold these molars

distally with no other help.

6. Are the lower incisors thin labial-lingually at the incisal edges? These teeth are difficult to retain in order to prevent a recurrence of rotations since it is easy for them to overlap. Stripping does not alter this thickness. However, judicious trimming of the incisal edges can and does tend to lessen the overbite as well. If there are rotations and crowding present, trimming of the incisal edges might be considered. The placement of a fixed canine-to-canine lingual retainer is strongly recommended in these cases due to the strong tendency for recurrent crowding in this area until 20 years of age, particularly in males. Upper incisor rotations can be aided in retention by a circumferential fiberotomy to reorganize the gingival fibers.

**D. Other miscellaneous problems to watch for:**

1. Are there any missing teeth? It is probably preferable to extract the deciduous tooth that has no permanent replacement and to close the space with orthodontic fixed appliances provided there is sufficient crowding to warrant this close-up. If there is no crowding and the deciduous teeth (particularly deciduous molars) are going to be retained, then the Occlus-o-Guide® can be used effectively to correct the other problems without placing stress on these teeth. Missing upper lateral incisors is an esthetic problem and again the choice becomes one of closing the space by using the canine as a “lateral” and altering its shape by disking and/or bonding or of opening the space with the replacement of the lateral by fixed bridgework. Again, the choice general is to try to close the space. In either case it is not recommended that the Occlus-o-Guide® be used.
2. Are there impacted non-erupted teeth? Always feel for the canine eminence in both arches but particularly in the maxilla. If you do not feel the bulge, feel on the lingual and take an intra-oral X-ray film to verify its position. If the tooth is impacted, the Occlus-o-Guide® should not be used. If there is a follicular sac around the crown, which is preventing its proper eruption -- remove it and the Occlus-o-Guide® probably can be used for any other problems that exist. Impactions should involve fixed orthodontics.
3. Are the canines in position to fall directly into the correct place or are they mesial overlapping the root of the upper lateral incisor? If the canine is mesial from its position, it is a potential problem which the Occlus-o-Guide® is incapable of handling alone. It is possible to combine its use with a limited use of fixed appliances to accomplish the necessary result but each case has to be individually assessed. If the canines are mesial with little room for them due to the deciduous first molar being almost in direct contact with the permanent lateral incisors and missing deciduous canines, serial extraction can be considered if the canines are at least ¼ inch from breaking tissue. In this case, an extraction Occlus-o-Guide® can be used effectively. The rule: do not use the Occlus-o-Guide® with the extractions unless the case will work out satisfactorily even without cooperation on the part of the patient as to wear. Also, do not use the Occlus-o-Guide® for such cases if the canine is low and almost ready to erupt -- it will never migrate or be moved distally in the place of the first bicuspid in time for a satisfactory result without help from fixed appliances. These cases can be treated with a combination of fixed appliances and an Occlus-o-Guide® to align the incisors once the space for them is created by the retraction of the canine through the use of fixed appliances posteriorly including canines.
4. Is the midline off by more than 2 mm.? This usually is an indication that the posterior occlusion is not the same on both sides or that more crowding or spacing exists on one side. Do not use the Occlus-o-Guide® in these cases since the appliance treats both sides equally and it will be most difficult to get a satisfactory result.
5. Do the upper incisors tip in towards the inside of the mouth? This case would require labial crown torque or lingual root torque which the Occlus-o-Guide® is usually not capable of producing. The parent should be informed that this problem probably would have to be corrected with fixed appliances following the use of the Occlus-o-Guide® or at the same time it is being used. The Occlus-o-Guide® cannot torque teeth unless there are adjacent teeth that require opposite torque directions and the cervix of each tooth is

properly positioned.

6. Are the upper lateral incisors rotated? It is difficult for the Occlus-o-Guide® to rotate the upper lateral incisors fully. Frequently these teeth are rotated at the end of the Occlus-o-Guide® treatment with a Hawley retainer with a lingual rotating wire imbedded in the plastic followed by a circumferential fiberotomy to permanently retain the correction.

**E. General recommendations:**

1. Do not use the Occlus-o-Guide® as a panacea for all orthodontic problems. Most problems that exist involve relatively well aligned anterior teeth mesio-distally but involve overbite and overjet problems that can be easily handled by the Occlus-o-Guide®. At least one out of every three Caucasian children have these problems. If minute crowding, ectopically erupting teeth (other than bicuspids), severe rotations, missing teeth, severe adult overbite and overjet, adult crowding, impacted canines are present, do not use the Occlus-o-Guide®. The results will not be acceptable and these problems usually involve more precise control over individual teeth than can more effectively be accomplished by fixed appliances.

**F. Problem solver:**

1. Is there suddenly no more overbite correction even though the patient is wearing the Occlus-o-Guide® four hours each day?
  - (a) Check to see if the incisors (particularly the lower) are beginning to bite through the material. You can either replace the appliance with an extra-hard type or you can add self-cure acrylic in one each across the incisor. When you add the acrylic, have the patient move the mandible slightly forward and have him close partially but not all the way into the sockets. Provide about 1 to 2 mm of acrylic above the incisal edges. Usually it is best to add a solvent inside the Occlus-o-Guide® before adding the acrylic or roughen up the plastic slightly with a bur.
  - (b) Check to see if the patient is effectively wearing the Occlus-o-Guide® during the day without interruptions such as talking a lot while wearing it, rolling it around and playing with it in the mouth or just not telling the truth on the chart. Make sure the patient accurately keeps the chart and brings it in for you to see.
  - (c) Check to see if the patient is biting long enough and hard enough in the Occlus-o-Guide®. Frequent resting times with shortened biting times lead to unsatisfactory results. The longer the patient holds it under pressure, the better the results. Some children can hold their teeth together under pressure for close to an hour without much letup. These cases have rapid tooth change.
  - (d) Check to see if there is a large free-way space with a laterally spreading tongue. This is explained under A-3 and is a contraindication for the Occlus-o-Guide® use.
  - (e) Check to see if multiple spaces exist between the upper incisors. These may have to be closed first with a Hawley retainer as explained in A-4.
  - (f) If the mother makes excuses for the child's not finding enough time to wear it four hours each day, the child is probably wearing it very little. A check for the C-D coloring for the Occlus-o-Guide® will help in these cases to verify the proper number of hours of wear. The mother should be asked about the wear, particularly when the child is not present. This will often pinpoint the problem of non-cooperation.
2. Is there suddenly no more overjet correction even though the patient is wearing the Occlus-o-Guide® four hours each day?
  - (a) Check on the original models for an opening between the lower incisal edges and the palate or teeth vertically. Also check the patient's swallowing pattern to see if an anterior tongue thrust exists. See B-3

for further explanation of this problem.

(b) Check to see if a lower lip roll is present during normal resting posture, during swallowing, or as a habit that can effectively overcome the forces created by the Occlus-o-Guide® use. You must instruct the patient to hold the lips over the labial margins of the Occlus-o-Guide® and keep the lips closed during its use. Also, the patient should consciously keep the lower lip in front of the upper incisors when not using the Occlus-o-Guide®. If this fails, some fixed appliances with intermaxillary Class II elastics as described in B-3 and perhaps subscribe for additional lip exercises from an oral myofunctional therapist.

(c) If most of the overjet has been corrected and about 2 or 3 mm remain difficult to obtain, continue with the regular “G” series Occlus-o-Guide® until the overbite is corrected the way you desire, then go to an “H” series Occlus-o-Guide® to quickly get the last amount of correction. When this is done, you can go back to the original Occlus-o-Guide® as a retainer.

3. Are there still rotations present in the lower or upper arch?

(a) If there is sufficient room in the lower arch and no improvement in the lower incisal rotations occur, the patient is not wearing it 4 hours consistently every day.

(b) If rotations are still present to a minor extent and further movement seems difficult, place 0.030” round wire cleats in the Occlus-o-Guide® both labially and lingually to increase the forces of rotation. Rotations of the upper lateral incisors are frequently difficult to obtain and often have to be treated with a Hawley or fixed appliances as described in D-6.

4. Is there a slight space between some of the lower incisors? This is purposely created by the interproximal areas left between the lower incisors because of a tendency of most children to experience increased crowding in the lower arch between 14 and 20 years of age. It will disappear within days after the Occlus-o-Guide® is not worn.

5. Do spaces still remain interproximally between the posterior teeth, particularly in the lower arch? The Occlus-o-Guide® will close about 3 to 4 mm of total space in an arch (more in the upper) and if more than this exists it becomes difficult to close it all without bucco-lingual wires to move the bicuspid forward, but this is generally very difficult if too much space exists. Mesial migration is aided by the eruption of the lower second and third molars but the massive closure should be made with fixed appliances.

6. Is there lack of eruption of posterior teeth? This can occur in about 20% of cases when the bite opening occurs after all the posterior teeth are fully erupted and the eruption potential is less at this stage. Rarely does this occur if the case is started at the proper time (while the bicuspid and canines are beginning to erupt). The solution is to wait for their eruption. At times it takes one or two years for the full eruption. If it doesn't occur, then

(a) The Occlus-o-Guide® can be discontinued and the bite can be stimulated to close with biting pressure on the teeth alone.

(b) Brackets can be placed with vertical elastics to stimulate their eruption.

(c) A tongue crib can be placed lingual to the crown of the posterior teeth to see if the teeth will erupt.

7. A bicuspid has erupted very fast and the bone and soft tissue has not erupted with the tooth. Be sure to check before you start Occlus-o-Guide® treatment if there is a lack of eruption of a deciduous molar or an ankylosed deciduous molar adjacent to the erupting bicuspid. It should be extracted before starting and close monitoring of the tissue is important. A slowing down of active daily wear (to one hour per day) is recommended until the eruption speed of the bicuspid is slowed to that of the second bicuspid. Free tissue grafts from the plate can be made on severely thin buccal or labial tissue but these cases are very rare.

8. Is the posterior bit open on one side and not the other? This is usually due to sloppy insertion of the Occlus-

o-Guide® by the patient. This is especially apparent in cases requiring closure of anterior spaces where an equal stretching of the appliance is necessary for closure when a smaller size is normally recommended. The patient will carelessly fit the Occlus-o-Guide® to one side and not the other where then he bites down the posterior teeth occludes onto the interproximal ridges and prevents their full eruption as is present on the other side.

9. The patient complains that the appliance hurts each time he wears it. This is a sign that he does not wear it every day so that each time it is worn it is like starting all over with it. Some children complain of muscle ache when they wear it in one four-hour stretch. This can be avoided by spreading out the wear throughout the day at different intervals of shorter duration. Very infrequently children complain of headaches and it has to be determined whether the child is using it as an excuse not to wear the appliance, or if it is a definite problem. About one case in every 500, the treatment is discontinued for this reason. The exercising probably contracts other muscles such as the occipito-frontalis, which can cause tension in the scalp.
10. The patient complains of TMJ pain. The Occlus-o-Guide® is an efficient splint for correcting most minor to moderate TMJ symptoms in 83% of those cases exhibiting TMJ symptoms initially. If an increase in joint symptoms occurs, it is recommended that the Occlus-o-Guide® wear is topped and worn only at night as a passive splint. If a patient has TMJ pain and severe symptoms initially, the Occlus-o-Guide® is not recommended due to the exercise necessary for most corrections.
11. The upper first permanent molars seem overexpanded. This is caused by usage the “G” mixed dentition series after the upper second molars begin their eruption and force the first molars buccally. The “G” mixed dentition series cannot force the first molars lingually because there is little force in this area. If you switch to the adult “N” series, it will correct the problem.

:RECOG