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Restorative occlusion utilizing a custom incisal guide table

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The custom anterior guide table is used to (1) record and/or re-establish a physiologically acceptable anterior guidance, (2) produce an occlusal restoration in harmony with the patient's physiologic occlusion, (3) aid the dental laboratory technician in developing occlusion, and (4) decrease the dentist's time at the chair for insertion adjustments.

MAJOR CATEGORIES FOR CUSTOM INCISAL GUIDANCE

The technique for use of the custom incisal guide table may be divided into two major categories. First, the restoration will be fabricated in the patient's acquired or habitual centric occlusion. The second application of the technique occurs when an entirely new occlusion is to be established using centric relation.

When using the custom incisal table, the dentist has established the guidances and stops through faceting and wear patterns or has elected to modify occlusoincisal relationships. Satisfactory results may be achieved using this technique with a semi-adjustable articulator if a face-bow transfer is made relating the maxillary arch to the temporomandibular joints and if the hinge axis is located.

Knowledge of gnathologic philosophies and basic principles of occlusion plays an important part in the development of the final restoration.[1-5]

HABITUAL MAXIMUM INTERCUSPAL POSITION

When the neuromuscular system is functioning physiologically and the supportive structures are healthy, the restorative treatment technique is simple in concept

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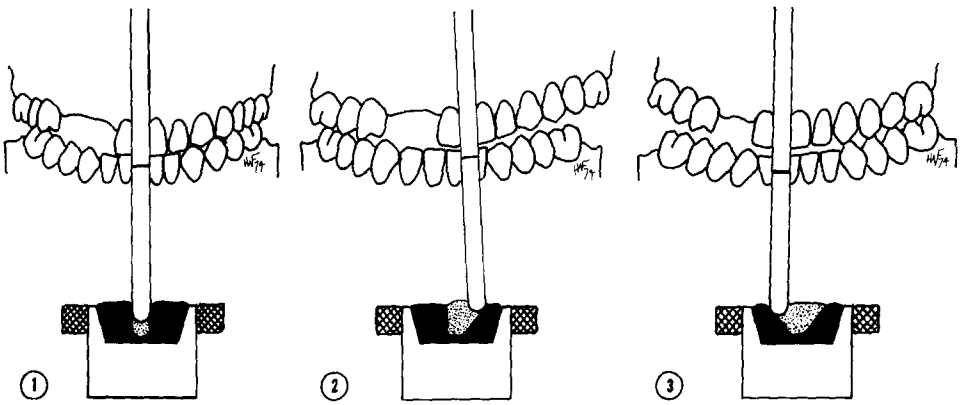

Fig. 1. The incisal guide pin moves the soft acrylic resin posteriorly in the cup-shaped table.
Fig. 2. The soft acrylic resin is molded by the incisal guide pin in the right working excursion.
Fig. 3. The guide table is completely formed for the left working excursion.

and does not require time-consuming patient manipulation or extensive laboratory procedures.

A restoration which does not directly encompass the entire existing dentition, or a major portion of that dentition, need not be constructed in the centric relation position but rather in the patient's habitual or acquired maximum intercuspal position (centric occlusion).

TECHNIQUE FOR FABRICATION OF A CUSTOM INCISAL GUIDE TABLE

(1) Make an accurate set of diagnostic casts in improved die stone to minimize wear as the casts are directed through the various excursive movements when mounted on the articulator.

(2) Mount the casts on the articulator using a face-bow transfer.

(3) Adjust the condylar inclinations on the articulator.

(4) Prepare the incisal guide table. (a) If a metal table is used, thoroughly lubricate all surfaces with petroleum jelly. (b) If a plastic table is used, roughen the surface with a bur or stone and then wet the surface with acrylic resin monomer.

(5) Check the incisal guide pin clearance using the rounded end of the pin. Move the articulated casts through all possible excursions, making sure the metal guide pin does not contact the incisal table at any time other than during habitual centric occlusion.

(6) Mix a fine, powdered, cold-curing acrylic resin to a doughy consistency.

(7) Place the wet acrylic resin mix on the incisal table.

(8) Close the lubricated round end of the incisal guide pin into the soft acrylic resin mass when it begins to lose the glossy sheen (Fig. 1).

(9) Move the guide pin through all the possible excursions of the mandible using the guidance factors of the die stone casts to carry the incisal pin through the soft acrylic resin (Figs. 2 and 3). Continue these movements until the resin is totally set. All mandibular movements should be clear and well defined, resulting in a custom incisal guide table which appears as a three-dimensional envelope of motion.

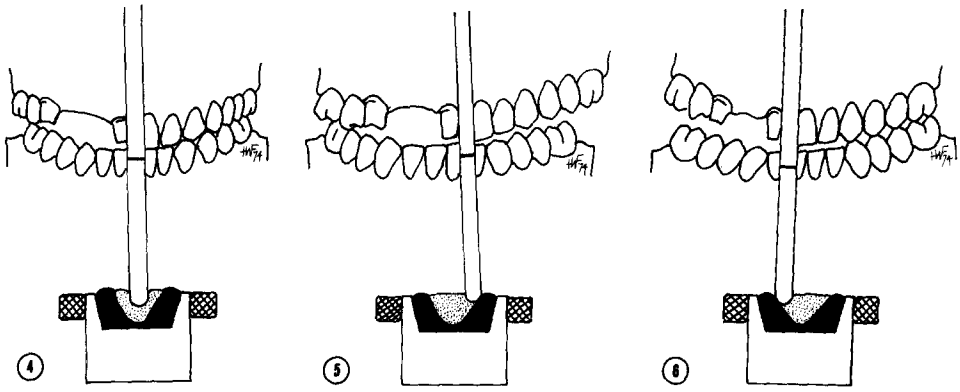

Fig. 4. The working model with prepared teeth illustrates proper clearance in the protrusive position.

Fig. 5. The working model with prepared teeth demonstrates clearance in the right working excursion.

Fig. 6. The working model with prepared teeth showing clearance in left working excursion.

(10) Recheck the excursive movements after the resin custom incisal guide table has completely set, paying close attention to the contacting guidances of the stone teeth on the mounted casts.

(11) Compare these guidances to the contacts seen clinically. Should a discrepancy arise between the patient's guiding contacts and those indicated by the diagnostic casts, a portion of the guide table must be altered. Relieve the acrylic resin with a round acrylic bur, add fresh acrylic resin to that area of the table, and again move the incisal guide pin through that particular excursion.

(12) Mount the working cast with the removable dies on the articulator. The restoration is waxed to the opposing occlusion (Figs. 4 to 6).

The cuspal inclines of the guiding cusps can be accurately re-established in the restoration during the wax-up procedure. This technique is suitable for patients requiring either canine guidance or a group-function occlusion, and it can also be used for patients who require the reduction of multiple abutment teeth or individual crowns.

EXTENSIVE RESTORATIONS AND RECONSTRUCTIONS

In more complex situations, an additional step is required prior to the fabrication of the custom incisal guide table.

(1) Place a provisional restoration and/or modify existing teeth to provide a physiologically acceptable occlusion.

(2) Refine the tooth guidances for excursive movements in the provisional restoration during this phase of treatment.

(3) Develop maxillary anterior tooth length and esthetics at this time.

(4) Evaluate the phonetic patterns.

(5) Reappraise the occlusion continuously during the interim treatment period. A smooth entrance into centric relation, devoid of any interferences, and a smooth, unrestricted gliding path into the excursive movements must be maintained in the

provisional restoration. This will also aid in the correction or prevention of temporomandibular joint problems.

(6) Fabricate the diagnostic casts using an improved die stone after a thorough clinical re-evaluation of the provisional restoration.

(7) Fabricate the custom incisal guide table following the technique previously described.

SUMMARY

A technique for the fabrication of a custom incisal guide table and its rationale has been described. Existing incisal tables can be modified to afford the dentist a convenient modality for reproducing desirable anterior guidance.

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References

1. Stallard, H. S.: What Kind of Occlusion Should Recusped Teeth be Given, Dent. Clin. North Am., Nov., 1963, pp. 591-605.
2. Schuyler, C. H.: An Evaluation of Incisal Guidance and Its Influence in Restorative Dentistry, J. PROSTHET. DENT. 9: 374-378, 1959.
3. Posselt, U.: Physiology of Occlusion and Rehabilitation, Oxford, 1968, Alden & Mowbray, Ltd., pp. xiii-xiv.
4. Guichet, N. F.: Occlusion, Anaheim, Calif., 1970, The Denar Corp., p. 40.
5. Beyron, H.: Optimal Occlusion, Dent. Clin. North Am. 13: 537-554, 1969.

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