Few topics in dentistry evoke emotion or create confusion like occlusal-related topics. Concepts for making bite records for crown and bridge reconstruction are no different and can be oversimplified or overcomplicated depending on the clinical scenario. Treatment involving a single crown requires less sophistication in bite recording and is generally made using a conformatory or existing intercuspal recording (MIP). Recording a bite for preparations in a free end quadrant can be more complicated because there are no occlusal stops in the quadrant being restored. However, there are generally enough existing intercuspating teeth to enable a bite record that does not require assignment of a new vertical dimension or a condylar position. When a full arch has been prepared and there are no longer any occlusal anatomical landmarks present, it may be challenging to arbitrarily assign a vertical dimension and condylar position and accurately record it.

Before one can make any bite record, they must have a goal in mind. In the case of the single tooth crown, the goal is generally to restore the crown in harmony with the established occlusal scheme. This means allowing the existing intercuspal position to dictate the occlusion without making any alterations to the vertical dimension or the condylar position. In the case of the free end or distal extension quadrant, the goal is generally no alteration of the vertical dimension or condylar position either. However, when a full arch is being restored at one time, we have the opportunity to establish any vertical dimension or condylar position we desire. This topic alone could generate many hours of discussion. I would like to assume in this article the vertical dimension has been established in the new provisional and approved by the patient. Therefore, the provisional restoration maintains the vertical dimension for the bite record.
The question remains, how can we register a bite when there are no occlusal anatomical stops remaining due to full-arch tooth preparation? In this segment I will discuss two techniques for recording a bite record when a full arch is being restored with crown and bridge reconstruction.

**The Problem:**

So many times, our tireless efforts at making a ceramic restoration look beautiful are wasted because we wind up grinding in the occlusion and losing the beauty of the occlusal anatomy that our technician worked so hard to deliver (Fig. 1, 2). Despite all of our efforts to evaluate, diagnose, treatment plan, meticulously remove decay, bond flawless cores, place perfect finish lines, make perfect final impressions and deliver the case with finesse, if the final ceramics do not look great, our efforts may feel wasted.

Critical to an exquisite outcome is the recording of an accurate final bite record. When no occlusal or vertical stops remain on the previously existing tooth surfaces or dentistry, the dentist might feel “lost at sea” or confused about how to register a bite record that captures the condylar position at the desired occlusal vertical dimension of the desired definitive reconstruction. I will describe two clinical techniques to record a bite record when the entire arch has been prepared.

**Technique #1 – Sectional Provisional Method**

This technique assumes that the entire arch to be restored has been prepared and temporized with a fixed provisional restoration. In the illustrated case, a three-piece sectional provisional has been fabricated.

Step 1: Remove the provisional, refine your preparations and initiate soft-tissue retraction protocol (Fig. 3).

Step 2: Verify adequate occlusal and incisal clearance by seating the posterior provisional sections to check for anterior clearance (Fig. 4) and then switching; placing the anterior provisional to check for posterior clearance (Fig. 5). Rehearse this closing routine and mark the lower incisal contact point to the maxillary cingulum contact point for future verification.

Step 3: With the anterior provisional restoration seated and the posterior preparations visible, place a rigid polyvinyl silicone putty between the posterior prepared segments and the opposing arch. Have the patient close comfortably through the putty until the anterior contact is exactly as it was in the rehearsed version. After setting, the bite record should be trimmed and verified in the mouth that there are no deflective interferences in the record. In other words, the patient should be able to close as though the record isn’t even present and repeat the anterior contact relationship that would be present if the record were not in the mouth (Fig. 6).

Utilizing the anterior section of the provisional restoration to act as the stop not only preserves the correct vertical occlusal dimension, but it allows the condyle to seat uninhibited by posterior tooth influence. This is similar to any anterior deprogrammer concept such as the Lucia Jig.

Step 4: The anterior provisional is now removed and the record is verified without the provisional in place (Fig. 7).

Step 5: A small line of polyvinyl silicone is delivered to the mandibular teeth and the patient is instructed to close into the existing posterior record. This should be an unhindered and unmanipulated closure and I always stress, “gentle closing.” I do not want the patient to overcompress the posterior putty bite records (Fig. 8).

The sectional bite record is now complete and it is made at the vertical occlusal dimension and the condylar position dictated by the corrected and confirmed provisional restorations that the patient has verified to be comfortable.

It is advisable to schedule a metal framework try-in for full arch cases. This provides the opportunity to not only verify the marginal integrity and fit of the casting but also allows for a verification bite record. This bite record is made with a light-cured composite anterior bite stop placed on the framework and acts as an anterior deprogrammer in the exact fashion as the anterior sectional provisional restoration. The bite stop should be made on the articulator at the same exact vertical dimension as the casting was made and should be flat with no incisor indentations.
Marking it with articulating paper is advisable and acts as a verification of repeatable closing during the registration of the record. A line of polyvinyl silicone bite registration material is placed on the mandibular teeth and the patient is instructed to close on the anterior jig. Care is taken to verify contact with the previously marked closing position (Fig. 9-13).

Step 6: Delivery of the final crown and bridge restoration. This image is taken after occlusal adjustment and polishing (Fig. 14, 15).

**Technique #2 – Vacuuform Method**

Certain clinical situations dictate the use of a fixed full arch splinted provisional restoration. In this instance, sectional provisional bite records may not be possible and the vacuuform method might be used. This method utilizes a vacuuform of an accepted provisional cast.

Step 1: Once the patient reports comfort with the vertical dimension and condylar position, a vacuuform shim is made over the accepted provisional cast (Fig. 16).

Step 2: The vacuuform is trimmed, leaving a portion of the palate as a stop, and is tried in the mouth. This try-in serves to verify the interdigitation and indexing to the opposing arch (Fig. 17).

Step 3: A polyvinyl silicone bite registration material is placed inside the vacuuform and seated in the mouth. The patient is instructed to close gently until the vacuuform is interdigitating the opposing teeth. Bite registration material is not placed in the palatal portion of the shim so that a verified seating to the palate is visible (Fig. 18).

Step 4: Once the bite registration material has set, the patient is instructed to open and additional bite registration material is placed on the occlusal surface of the opposing teeth. The patient is asked to close gently until the teeth interdigitate again (Fig. 19).

Step 5: The record is trimmed and replaced in the mouth for verification (Fig. 20).

**Conclusion**

A challenging aspect of full-arch reconstruction is registering bite records. This paper presents simple methods for making a bite record when no occlusal anatomy is present to act as a vertical and centric stop. ■

**Author’s Bio**

Dr. Howard Chasolen is a prosthodontist who holds an academic appointment as assistant clinical professor at The University of Florida School of Dental Medicine, teaching in the post graduate resident specialty program in prosthodontics. He is the founder of The Chasolen Education & Research Center, a center for educating dentists around the world and teaches across the country giving more than 100 hours of continuing education per year. His private practice is located in Sarasota, Florida, and is limited to prosthodontics, cosmetics, implant dentistry and the restoration of the complex interdisciplinary patient. He has restored more than 850 full arches, 15,000 units of crown and bridge and 7,000 implants. To learn more about his continuing education programs, visit www.howardchasolen.com.