

# Restorative dentistry and occlusal harmony

By Van B. Haywood, DMD

**R**estorative dentistry is built on a foundation of solid occlusion. If the occlusion is not addressed, then no matter how good the margins or shade match are on a restoration, the patient will ultimately “chew it up and spit it out.”

Here are some insights about the impact of occlusion on restorative dentistry:

## Your new restoration was fine when the patient left the office, but it is high in occlusion the next day.

After a routine dental appointment for a restoration, patients who have tight, tired muscles from grinding or clenching may not be able to close completely. They will close on their front teeth, but due to the spastic contraction of the muscles from excessive use, the condyle does not seat completely, and the back teeth are out of occlusion. It may take several hours or days for the muscles to relax and allow complete closure. At the beginning of the restorative appointment, observe or mark the occlusion on the most posterior remaining teeth. If the patient cannot reproduce that point of contact after being open for a time, you must ensure that the new restoration is out of occlusion as much as the most posterior contact, or it will be high when the muscles finally return to their normal function the next day. Often, you have to bring the patient back for an adjustment.

## The patient says the bite feels off on the new restoration.

After drying the teeth, have the patient grind his or her teeth on a light-colored articulating paper such as red. Then air-dry the teeth and have the patient tap into maximum intercuspation (MI) on a different-colored articulating paper such as blue. On examination, there should be blue dots on all the teeth and blue dots with red lines only on the anterior teeth. If you see any red lines on the posterior teeth or if the blue dots are larger than one millimeter, you have working and non-working interferences that need to be removed to change the bite sensation and avoid increased muscle activity, tooth wear or headaches.

## Explaining to patients that restoring one broken tooth often requires adjusting two teeth.

Often a tooth with a crack is caused by the opposing tooth, which needs some adjustment to eliminate a “plunger cusp” before restoring a fractured area on a tooth. Failure to shorten and reshape the opposing tooth with a limited occlusal adjustment may shorten the life of the new restoration on the fractured tooth.

## Your ceramic crowns always seem high in occlusion.

Crowns should be seated completely, especially zirconia ceramic crowns, to avoid grinding on the occlusal surfaces and fracturing or grinding through the ceramic. Seating is best accomplished using a disclosing medium, which is the same thickness as the final cement and basically takes an impression of the fit of the crown at the point of seating. Time spent seating the crown completely using this technique will be rewarded by excellent occlusion with minimal adjustment.

## Crowns that were once good now have notches at the margins.

Gingival notches may be related to heavy forces on the teeth causing tooth flexure. Restoration of these areas is best done with resin modified glass ionomers rather than composite resin. However, the cause of the notches must be identified and treated, or the restorations will fail in the same manner as the tooth.

See HARMONY, page 5



## HARMONY

Continued from page 4



**Some crowns seem to work great while others have to continually be adjusted.**

The choice of which articulators to use for indirect procedures is based on the occlusal scheme of the patient. If the tooth being restored does not involve any functional guidance, then a quadrant or triple tray impression is appropriate. If the tooth being restored is involved in functional guidance, then a semi-adjustable articulator should be considered. Adjusting the patient's occlusion before the crown is placed will also help.



**Using splints to adjust the occlusion when they come from the lab is too frustrating.**

Bruxism splints are best constructed if the interocclusal record (bite) is taken at the desired vertical dimension of the splint in centric relation (CR). Using this recording of the vertical dimension of the final splint technique does not require a semi-adjustable articulator, since there are no "arch of closure" issues, and there will be minimal occlusal adjustments.



**The patient complains the new restoration does not feel right.**

If there is a difference between CR and MI, then you should determine whether it is beneficial or possible to make them coincide before the new restoration is placed. If it is not, you should make certain no restora-

tions are placed that interfere with this slide path. Evaluate the slide path from CR to MI, in addition to the MI contacts and lateral movements, when placing restorations.



**You have just placed a posterior composite which the patient says still feels high, but there is no contact on the restoration.**

Your teeth can detect the thickness of a human hair, less than 40 microns. Sometimes the bonding agent has traveled into an occlusal contact area but cannot be seen. A slow speed latch-type round bur will cut composite, but not damage enamel. Run the slow speed bur over the occlusal contacts on the tooth, removing the bonding agent and remark. The occlusal contacts should still be present, but the patient should feel fine with the bonding agent removed.

All of these areas are occlusal issues that are made visible in the restorative outcomes. Addressing or recognizing them can lead to a much more satisfied patient.



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