

Why Do New Crowns Require Occlusal Adjustments?

If you've ever asked yourself this question, you are not alone. A recent survey by a leading dental publication found that over 60% of dentists listed "high" occlusion as complaint #1 in dealing with dental laboratories.

Grinding in these "high" units wastes chair time and crown anatomy at the same time. Patients wonder what is wrong with their new crown while you and your team battle the schedule to get back on time for the rest of the day.

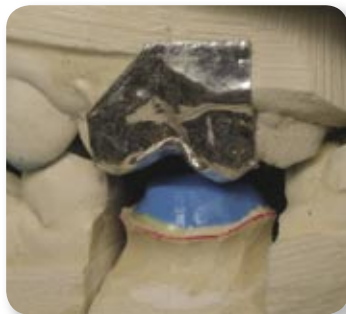
Many clinicians have written about the problem of high crowns and offered explanations. Some blame poor temporaries that allow tooth movement. Others cite

inaccurate bites and distorted impressions. Still others believe that jaw repositioning after tooth preparation may create new occlusal relationships.

Treating the symptom rather than the cause is a common reaction. Asking your laboratory to "foil the opposing" or to leave new crowns "out of occlusion" may work for a short time, but seldom eliminates the problem in any significant way. Assuming that your crowns fit the tooth properly and margins are



New crown, adjusted to bite.



Foiling the bite.

closed, high occlusion, in our opinion, is likely caused by an inaccurate occlusal surface on the models and/or inaccurate mounting of the models.

Many lab technicians, lab assistants and doctors believe that poured models can be articulated by hand or with a bite. At first glance, most of these cases "look and feel" like the models are accurately seated. More often than not, however, the models do not represent MI (Maximum Intercuspation). Hand seated models cannot accurately reproduce the "clenched bite" of patients. Why?

The occlusal surface of a stone model is rarely a precise

reproduction of the occlusal surface of the teeth. Saliva contamination on occlusals is common. Tray show through on occlusals, poor definition of heavy set tray materials and other factors rarely allow the precise intercuspation that a patient can achieve when asked to put "your teeth together and squeeze." Add to these impression problems the difficulty of getting detailed occlusal pours in the lab, and you can most likely see that models rarely fit together like the teeth...it just looks that way.

How Can Keller Laboratory Help?

Based on the current state of impression materials, gypsum products, and all the procedures required for reasonable model accuracy, Keller has to be more concerned about the way occlusal surfaces meet each other on the lab bench. Beginning in January 2005 we are making 2 modifications in how we process all model articulations and selected triple tray impressions in particular.

- Model Equilibration to MI for all crown cases
- Use of GBase articulation on all triple tray impressions

Model Equilibration

To achieve reasonably good occlusion in the mouth, your models have to accurately reproduce the same occlusion on the bench. Educated model equilibration is the key.

If you gently close your own teeth until they touch, you have just that...teeth touching. For most of the population this position is not MI. Once the teeth touch, however, if you "squeeze" the teeth together, you will feel a shift and a more intimate contact. This clenched position, MI to some, is where the crown must articulate without interference to minimize adjustments. Daytime and nighttime clenched have no trouble finding this position and a minimally "high" crown may have them returning to you for pain relief adjustments.

The ability to reproduce this clenched position on the bench requires that the models seat in the most intimate position possible. The only way to duplicate this "clenched" position is for you, your lab assistant, or your lab technician

(continued on page 2)

GBase Procedure



GBase Articulator, opposing poured first.



Checking pin placement.



Pour working side then invert and close to "bite."



Removing impression from articulation.



Case mounted as registered in the impression.

Occlusal Adjustments

(continued from page 1)

to equilibrate the models, with special attention to the dies adjacent to the prepped tooth.

New GBase Articulator for Triple Trays Now in Use

Another reason that crowns are high in the mouth can be attributed to the modelwork, specifically the articulation methods used when triple tray impressions are sent to the laboratory.

Like many labs we have not been quick to adapt to new methods of doing modelwork for various reasons...but none of them seem to stand up in face of the overwhelming use and popularity of the 3 in one (triple tray) impression procedure. A new articulator system, GBase, provides us with the system to improve.

Most clinicians agree that the key to proper mounting with a triple tray impression is that model pours of both arches have to be mounted in an articulated position before either arch pour is separated from the impression. Only by doing this articulation prior to separation can the lab assure you that the models are mounted in the same relationship as the bite registration included in the impression.

Not only does the GBase system provide accurate reproduction of your bite registration/impression, but the unique base and pin setting provides improved die stability for minimal contact adjustments.

GBase System Advantages:

- *Accurate bite from triple tray impression minimizes occlusal adjustments for high occlusion.*
- *Minimal stone base limits expansion and improves crown fit overall.*
- *Stable base for pins improves die stability and minimizes contact adjustments.*

How the Dentist and Clinical Team Can Help

If you use a traditional Light Body/Heavy Body Simultaneous (Monophase) Impression Technique:

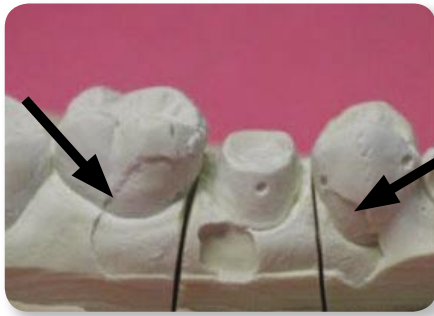
The light body wash you place around the margins for greater detail is important for the best fitting margins. Why not place a wash of the same light body across the occlusal surface of the adjacent teeth to the prep...or better yet, run a bead of it over the occlusals of all the teeth to be included in the impression? Be more generous with this light body and you'll reduce chair side adjustments. The extra detail here for just a few pennies more in material, can save you time and trouble with occlusion.

- *Never reline an impression when using these materials or procedures.*
- *Use more wash on occlusals of all opposing surfaces, especially on the teeth adjacent to the prep.*
- *Take a small bite registration over the prep for verification by lab of accurate bite.*

(continued on page 3)

Occlusal Adjustments

(continued from page 2)



Do not reline

Reline "step" will cause high occlusion on crown.



Great detail

No detail

Great detail with wash... no wash, no detail.

If you use the H & H Impression Technique or similar variation:

A popular impression technique that works great for some and causes headache for many others, including lab technicians, the H & H procedure is highly dependent on using specific materials and trays. See <http://www.bettersmile.com/articles/11-1.html>, Dr. Jeffrey Hoos's website article for the procedure and impression material requirements. Not all materials are indicated for this technique. The impression materials, both the tray and the wash materials, have very specific durometer hardness and viscosity requirements for this to work. You will find another thorough and practical discussion on the H & H technique at www.adhesion.com, Dr. Ray Bertolotti's website. Click on *Newsletter*, then on *Previous Issue Zero Invasion Dentistry* and scroll down to *H & H Impressions*. As Dr. Bertolotti points out in this article, you must use the proper impression materials, never use a rigid tray for this technique and use an adequate amount of stiff tray impression material to avoid problems. He goes on to say that inadequate die spacing by the lab is perhaps the most common cause of ill-fitting crowns. Unfortunately, unless you tell the lab you are using the H & H technique and using the proper materials for the procedure, the lab has no way of knowing whether to follow the H & H die spacing recommendations.

If you use Triple Trays: The original triple tray technique was developed using flexible plastic trays and very rigid impression material (Impregum). Since the initial success of that system for taking impressions, many new trays and materials have been introduced.

Rigid trays. Flexible trays. Plastic trays, metal trays and metal-reinforced plastic trays. Trays with sides and without. What's important to remember is that all impression trays and materials are not necessarily interchangeable when it comes to dimensional accuracy. Sounds strange, but it's true.

For years CRA and Dr. Gordon Christensen pointed out in lectures and videotapes that flexible trays required rigid impression materials and that if you were using flexible materials and flexible trays simultaneously, significant impression distortions were possible.

Please be sure you check with your manufacturer's representative about the recommended trays for the materials you are using.

Tips for Taking Accurate Triple Tray Impressions:

- Use for 1-2 units only.
- Include the cuspid in any impression.
- Never allow teeth to contact the tray strap, tray sides, etc.
- If using a flexible tray combine with a very rigid setting impression material.
- Verify accurate bite relationship prior to impressing and repeat position several times before impressing.

Dr. Ray Bertolotti and Dr. Jeff Hoos Tips on H & H Technique:

- Never use a rigid tray.
- Always use specifically recommended impression materials for this technique.
- Minimal wash in prep tooth impression only before re-seating.
- Always inform the lab you have used H & H procedure.

NTI has Multiple Uses in the Dental Office



- Diagnostic
- Preventive
- Therapeutic

By Rick Coker, DDS

NTI will fit into any general or aesthetic practice. Once you learn the arts and crafts of making these simple devices, and how to adjust them properly, your practice will change in many ways, mine did.

NTI is much more than a treatment for headaches or bruxism. I use NTI to provide diagnostic direction for all kinds of treatment options. If your practice is like mine, patients in pain, some with severely worn dentitions, abfractions, fractured teeth and restorations, appear daily. Many want help and treatment but are unsure of the long term value of the treatments we propose. Some have already had crowns, posts, and other treatments that are failing or causing pain.

By using an NTI to help control parafunction and to limit the damage it can cause, I have confidence that the restorative treatment plans I propose will be comfortable, functional, and durable.

I am convinced that dentists who learn the how and why of NTI will increase their confidence in treatment planning, extend the useful lifetime of their treatments, learn to equilibrate with purpose, solve many tension headaches and pain, and, very importantly, increase their level of personal satisfaction and financial reward.

NTI appliances can be fabricated directly in the mouth using a pre-formed blank that is relined and adjusted chairside. The NTI Plus, by Keller Laboratory, is fabricated from impressions and a bite provided by the dental office. While the NTI direct has the benefit of immediate chairside fabrication and delivery, the laboratory appliance provides a stronger, denser appliance that remains stain and odor free for years with simple cleaning.

See *Upcoming Events* on page 5 for 2005 dates for *How and Why of NTI* program presented by Dr. Coker.



Hands-On CE



Dr. Kevin Harrell and patient.

"I was skeptical about the cost of this program. Would it really be worth the price of admission and the time? All I can say today is not only was it worth every penny and minute of time, but the whole experience far exceeded my expectations."

Dr. Kevin Harrell recently attended a Keller Smile Solution Practicum. The Practicum, a patient,

hands-on course, provides an exceptional learning experience for 5 doctors to complete a Smile Re-Design case with an experienced clinical mentor and supporting team of Keller technicians. The clinical mentor for Dr. Harrell's course, Dr. Michael Koczarski, lectured, demonstrated, and guided the participants through all 5 cases.

Smile Solution Practicums are offered throughout the year in various cities.

Smile Solution Practicums

24 CE credits

St. Louis, MO:

Prep: January 28-29

Seat: February 18

Dr. Thomas Teel

Kansas City, MO:

Prep: February 4-5

Seat: March 4

Dr. Robert Maher

Indianapolis, IN:

Prep: February 11-12

Seat: March 12

Dr. Rick Coker

Louisville, KY:

Prep: April 22-23

Seat: May 20

Dr. Robert Maher

**Contact Trish Pace at (888) 919-7577 ext. 4212
to register or ask about a
Smile Solution Practicum in your city.**



Dr. Rick Coker has been practicing dentistry in Tyler, Texas since he graduated from the University of Texas Dental Branch in 1972. He has completed the Pete Dawson workshops, Pankey Continuum and the Anterior Esthetics and Occlusion course at the Hombrook Group. He has served as president of the Texas Academy of Dental Practice Administration, was on the board of directors of the Association for Contemporary Dental Education (ACDE), and currently serves as a Board member of the Gen8Tnext internet dental group. He lectures in several areas of dentistry including cosmetic dentistry and the use of NTI within a cosmetic practice.

Dr. David Hornbrook Completes 2 Veneer Cases at Keller Customer Education Center



David Hornbrook, D.D.S.

On November 19-20 **Dr. David Hornbrook** presented a unique over-the-shoulder program at our St. Louis office. But this course actually began weeks earlier when one of the patients, Dr. Kevin Devine, flew to Dr. Hornbrook's office in San Diego for tooth preparation. Three weeks later that same patient would have his veneers

cemented by Dr. Hornbrook at the St. Louis program in front of our audience.

On day one of the program, Dr. Hornbrook lectured on the materials, procedures, and aesthetic guidelines for smile design. Later that day he demonstrated a wax-

up to mock-up procedure, then prepped and temporized a 10 unit veneer case for our customer service manager, Shawn Creason.

With Shawn's veneers prepped and temporized on day one, Dr. Hornbrook was ready to move on to cementation. Day two of the program began again with a lecture and "chalk talk," this time with an emphasis on placement procedures and materials. Finally, the conclusion on day two was the cementation of 10 Empress units on Dr. Kevin Devine.



Devine Pre-Op



Creason Pre-op

Attendees at the program included 20 Keller clients from 6 different states. The small group experience allows personal discussions of materials and case concerns, not only during the program but also while sharing breakfast and lunch

with Dr. Hornbrook. "Learning the materials and concepts of smile design in the morning, then watching it all applied that same afternoon was enlightening." As one attendee commented, "This brings it all together for me in a way that reading journal articles just cannot do."

To view slides of both these cases and the "Blueprint for Success" detailing the wax-up to mock-up procedure, go to www.kellerlab.com and click on *Latest News Story* "Dr. David Hornbrook at Keller Education Center."

Upcoming Events:

Coming to the St. Louis Education Center!

Esthetic Restorative Excellence with Inlays/Onlays and Metal-Free Crowns

Dr. Ronald Jackson
March 18, 2005

How and Why of NTI

Dr. Rick Coker
April 22, 2005 - Kansas City
April 23, 2005 - St. Louis

The Art of Aesthetics: The Pursuit of Excellence

Dr. David Hornbrook
November 11-12, 2005

Contact Trish Pace at (888) 919-7577 ext. 4212 for registration details.

Come see us at the Chicago Midwinter Meeting!

Booth #448
February 25-27



Patients Kevin Devine, D.D.S and Keller Customer Service Manager, Shawn Creason, show off their new Keller Smiles.

Keller Locations

(800) 325-3056 St. Louis, Missouri

(800) 292-1894 Louisville, Kentucky

(800) 325-3056 Indianapolis, Indiana

(800) 821-3107 Kansas City, Missouri

Simple Measurement Increases Denture Predictability

When doing dentures there are several methods commonly advocated for determining the position of the incisal edge of the maxillary centrals. Most dentists adjust a wax rim and then notch the rim in some way to indicate that position. A poorly fitting rim and the bulk of wax effecting lip drape are inherent difficulties in establishing that critical incisal edge position.

The Papillameter, a simple device in uncommon use, is one of the easiest ways to establish the incisal position in the vertical plane. By resting the papillameter on the incisal papilla, and allowing the lip to drape over the gauge, one can quickly determine a measurement for the low lip/high lip lines. These measurements, quickly transferred to a Keller Denture Rx, guide your technician to the proper setting position for the maxillary centrals. (see Figure 1)

Order a Papillameter today (\$26) and also receive a free

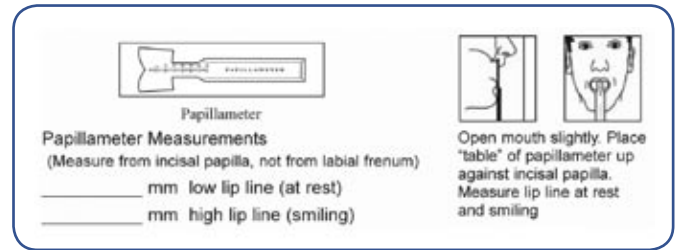


Figure 1

denture training CD that includes instructions on how to use the Papillameter, and several other techniques to help you achieve predictable, aesthetic and profitable denture results in only 3 appointments.

Hint: Lightly Vaseline the Papillameter to allow the lip to move easily from rest, to smile, to high lip line position.

Call for copy or download the entire denture Rx at www.kellerlab.com

Would you like to receive this newsletter via email? Just email us at keller@kellerlab.com with "Newsletter" as the subject and you're on the list.



Keller Laboratories, Inc.
160 Larkin Williams Industrial Court
P.O. Box 260161
St. Louis, MO 63026

www.kellerlab.com

Return service requested

PRESORTED STD
U.S. POSTAGE
PAID
FENTON, MO
PERMIT NO. 184