Switzerland’s E.M.S. Electro Medical Systems wants to demonstrate how treatment with an ultrasonic scaler can be enhanced even more with the brand new Piezon Master 700. EMS points to the special refinements of integrated i.Piezon technology. It is designed to assure smooth interaction between the original Piezon handpieces and the EMS Swiss instruments made of biocompatible surgical steel to ensure the best possible patient comfort. EMS says that the i.Piezon module assures instrument movements that are perfectly aligned with the tooth surface, and vibrates 52,000 times per second to make it extremely effective. The intelligent feedback control minimizes damage to the tooth substance.

The result is a uniquely smooth tooth surface and a maximum of soft-tissue protection. As EMS says, this is the formula for incomparable precision and therapy that is practically painless thanks to optimum instrument movements. The balanced Piezon handpieces show how substantially improved illumination of the oral cavity can be achieved with the six LEDs arranged around the tip of the handpiece.

In the words of the manufacturer, which describes itself as the leading maker of dental hygiene systems, this advance enables dentists to handle ultrasonic instruments with even greater precision. This means even greater precision for periodontal and root canal treatments, calculus removal, cavity preparation and other conservative treatments.

The seamless housing of the Piezon Master 700 has an esthetic, ergonomic and hygienic design that promises a high degree of operator comfort. The touch panel can be rapidly and precisely operated by simply touching the self-explanatory operating elements or tapping on the desired action. This enables the system to meet all the requirements in respect to ease of use and especially hygiene. The two replacement bottles with a capacity of 550 ml or 500 ml for holding various antiseptic solutions are resistant to UV radiation and can be replaced easily and quickly thanks to their snap-shut cap.

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Laboratory communication

Is it possible to achieve minimal to no adjustment bonding appointments?

By Bob Clark, CDT, LVIM

Adjustment-free appointments are actually possible and can be routine. Delivering veneers, inlays, onlays, crowns, bridges and partial dentures with very little or no proximal and occlusal adjustment can be common when a laboratory adheres to a strict protocol of die handling and die spacing, and has a firm understanding of how to properly equilibrate correctly mounted stone models and understand solid proximal contact model verification.

Basic cusp to fossa occlusion occurs when cusp inclines on posterior teeth do not touch other posterior inclines. Cusp tips must hit static stops in central fossa.

In laboratory model equilibration there is nothing more than the removal of all incline interferences and allowing cusp tips to occlude at 90-degree angles to opposing marginal ridges and central fossa. Anterior guidance should allow complete freedom from maximum intercuspation, immediately with lateral guidance on the canines. This will not activate the elevator muscles, therefore decreasing any chances of TMD.

Equilibrating mounted casts is crucial to achieving adjustment-free delivery appointments. Less than 1 percent of technicians understand why we need to, much less, how to perform this task. Because of this, the following are common techniques used to try to achieve adjustment-free cementation appointments:

• Placing metal foil under the working die to create a space. If too much foil is used, the crown may be shy of occlusal contact. When that tooth does erupt into occlusion, it may work into occlusion, creating an avoidance pattern for the mandible.
• Pushing die up so crown appears out of occlusion. When this happens, the crown may be shy of proximal contact. This is commonly called a black dot.
• Placing metal foil under the work die to create a space.

These techniques can never be exactly correct, and they both create problems for proximal contacts because they raise the proximal contact up, which makes the proximal contact shy at the delivery appointment.

This also creates an unstable situation because that tooth can now drift either mesially or distally, creating possible occlusal interferences.

The only way to have predictable, adjustment-free delivery appointments is to correctly equilibrate the accurately mounted working casts. This will take a trained technician approximately five to six minutes per case.

This technique should be used for all restorations whether Emax, Empress, LAVA, Cristobalite, BelleGlass, Implants, PFM, etc.

It can also be used on all partial denture cases. Anything involving natural teeth, from full-arch impressions or double bite trays — this technique should be employed, always!

An example of model equilibration for a #30

Centric equilibration

1) Opposing model and working models are both poured in liquid/powder ratio measured die stone. (Crucial!)
2) After mounting accurately, verify the mounting. Bite should not be taken with base plate wax but with a polyvinyl bite material that can be trimmed to allow only cusp tip show through. Use double-sided, Exac-ta-film red/black of 19-micron thickness, use black for centric, tap models together. Notice not all teeth are in contact.
3) Initial incline contacts should be removed. Do not ever remove cusp tips. Remove only inclines, as would be done for intraoral equilibration.

5a) A black dot stable holding contact should be found in the fossa of adjacent teeth; #31 and #29 in this example.
5b) There should be no contacts found on inclines, only on cusp tips and fossa. These holding contacts are found on all teeth. You can now proceed to the anterior guidance equilibration process. Lateral equilibration

4) There should be no change in vertical dimension of the equilibrated models in centric because this replicates a “power clinch” of all teeth. (Periodontal ligaments are fully depressed.)

4a) With the red side of Exac-ta-film, move models laterally and remove all red marks except those on canines, without removing black holding contacts on posterior teeth. The goal is to have black dots on all posterior teeth and red marks on the anterior teeth.

4b) At Williams Dental Laboratory, we go one step further to absolutely ensure no posterior interferences. We know all healthy teeth intrude into their periodontal ligament and move laterally. In this example, imagine the canine will move laterally 56 to 75 microns in a clinching lateral force.

4c) We safely remove approximately 5 degrees off of canine discusion to further “shallow” the guidance to ensure no posterior interferences. Posterior interferences must then be rechecked. Remember: the key is that lateral equilibration will not change the vertical dimension, only shallow the discusion, further ensuring no posterior interferences.

Now, and not until now, are the models ready to be utilized as an accurate portrayal of the mouth. This system, along with the use of a solid proximal contact model and soft-tissue model, should be employed on all cases in the laboratory regardless of material choice.

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About the author

Bob Clark, CDT, LVIM, is the first and only lab technician in the world to receive mastership status with LVI. He is co-owner of Williams Dental Laboratory, a small family-operated, full-service lab located in Gilroy, Calif.

He and his team have been working and training with LVI dentists for many years. Clark may be reached at (800) 715-5590 or bob@williamsdentallab.com.

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