

Debanding Day

The final step in creating simply spectacular smiles

By Neal D. Kravitz, DMD, MS

For the aesthetic-driven practice, the debanding appointment includes more than simply braces removal. Adjunctive cosmetic procedures such as enamelplasty, soft-tissue laser recontouring, bleaching, and cosmetic retainers can dramatically enhance smile aesthetics. This article will provide a comprehensive overview of the debanding protocol in our office, and highlight how simple aesthetic steps can produce spectacular smiles.

Smile Design

A successful debanding appointment begins with proper smile design. A beautiful smile 1) addresses the patient's chief concerns; 2) is broad, with prominent exposure of the first bicuspid and minimal black shadows present in the buccal corridors; 3) displays a gentle smile-arc consonant with the lower lip; 4) has artistic finishing and minimal central incisor prominence, 5) and reveals 1 to 4 mm of gingival splay (Figure 1).

Smile breadth is determined by the intra-arch width and axial inclination of the cuspids and first bicuspid (considered by many cosmetic dentists as one of the "eight anterior teeth").¹ Smile consonance is achieved with proper bracket placement of the canines and incisors, and can be improved at the detailing phase of treatment by stepping down the incisors. Often a slightly deep occlusion (3 mm of overbite) produces better smile consonance.

Informed Consent and Debanding Technique

In my office, I ask all patients to complete a debanding consent form (see page 66) prior to having their braces removed. The purpose of this document is to eliminate any misunderstanding. Our debanding consent informs the parent that braces will be removed upon their approval and reviews the patient's responsibility during the retention phase.

Before I remove the braces, I want the parent's approval that they are fully satisfied with their child's smile, and I want the child

to understand the importance of retention and the cost of lost retainers. This is the time to scrutinize every aspect of the patient's smile to ensure perfect results.

Without removing the elastic ties or archwire, I first loosen the bands and then debond the brackets. The bands, brackets, and wires are removed in one piece. When debonding ceramic brackets (which often requires more torque), I use finger pressure to stabilize the tooth. Alternatively, I may instruct the patient to bite down on a cotton roll or bite-registration wax.

For removing Incognito brackets (the new generation of 3m Unitek's iBraces), I recommend using either a posterior debonding plier, an angulated ligature cutter, or the Ormco ETM lingual debonding plier, which is effective for removing anterior lingual brackets though a bit cumbersome to operate.

Hard-Tissue Aesthetics: Enamelplasty and Smile Rejuvenation

Well-aligned teeth do not make a perfect smile. In my office, with our patient's approval, aesthetic enamel recontouring is a part of most debanding procedures.

Enamelplasty consists of flattening unsightly mammelons, recontouring misshapen or fractured incisal edges, improving facial transitional line angles, creating balanced incisal embrasures, and reducing thick marginal ridges on mongoloid incisors (Figure 2, page 66).

Proper aesthetic enamel recontouring should follow two basic principles of cosmetic dentistry. First, the width of maxillary central incisors should be approximately 80% the height.² Second, the widths of the anterior teeth should follow the "golden proportion." That is, the width of the lateral incisor should be 2/3 the width of the central incisor, and the width of the mesial half of the canine should be 2/3 the width of the lateral incisor.

While the need for enamelplasty is a result of tooth shape, the



Figure 1: A beautiful smile with acceptable smile aesthetics, width, consonance, and gingival splay. This adolescent female presented with 70% Class 2 division 1 malocclusion. Treatment was completed with a Class 2 corrector followed by Synergy-R brackets (Rocky Mountain Orthodontics) in a total of 18 months. Note the maxillary Bolton deficiency due to the smaller maxillary lateral incisors.



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extent of incisal reduction is often guided by the amount of overbite and the length of the incisors. In patients with small incisors or large incisal fractures, enamel-plasty is enhanced by the addition of soft-tissue laser surgery.

Soft-Tissue Aesthetics: Gingival Architecture Recontouring

Aesthetic soft-tissue laser surgery aims to produce an acceptable gingival splay with proper gingival shape and contour, while incorporating the cosmetic principles of proper tooth size and proportion mentioned above. Recommended gingival shape (or curvature of the gingival margin) has the gingival zeniths of the maxillary lateral incisors and mandibular incisors coinciding with the long axes of the teeth. Alternatively, the gingival zeniths of the maxillary central incisors and canines are distal to their long axes⁴ (Figure 3). Ideal gingival contour (or 3D gingival topography) is characterized by balanced, knife-edge interdental papillae.

For patients with bulbous papillae, either due to poor oral hygiene or tissue bunching after

Braces Removal and Retainer Consent Form

Congratulations (Patient's name)! Today is the day that your braces are coming off to unveil your beautiful smile! You are now entering an important phase of your treatment—the Retention Phase.

Completed orthodontic treatment does not guarantee perfectly straight teeth for the rest of your life. Teeth have a memory and often try to move back to their original positions. Retainers are required to keep your teeth in their new positions. Regular retainer wear is often necessary for a lifetime as your body is continually undergoing growth and maturation. Minor irregularities, particularly in the lower front teeth, may occur. In summary, you need your retainers to keep your teeth as straight as possible, but even with good retainer wear your teeth may move slightly.

Consent for Braces Removal

I am pleased with my/my child's smile and consent to removal of the braces/appliances (initials)

Retainer Instructions and Responsibilities

I understand that I have the following responsibilities:

- 1) Wear my removable retainers 22 hours a day (including sleeping) for the first year followed by "night-time for lifetime." Maintain the bonded retainers for lifetime.
- 2) Do not wear my removable retainers during eating to prevent damage.
- 3) Keep my removable retainers in the proper case when not wearing them.
- 4) Maintain my scheduled retention appointments as prescribed by my orthodontist.
- 5) Bring all removable retainers to my retention appointments.
- 6) Clean around my bonded retainer.
- 7) Have my General Dentist evaluate the readiness for wisdom tooth extraction.
- 8) Call the office immediately if my retainer breaks or is not fitting properly.

Lost or Broken Retainers

Your retainers are made using only the best possible material. Your bonded retainers are guaranteed for 6 months and are repaired at no charge during a retention appointment. If a retainer is lost or damaged, call our office immediately to schedule an appointment. There will be a \$XXX.XX laboratory charge per replacement retainer.

I understand the above information. I have had an opportunity to ask any questions, and I have had those questions adequately answered. I am ready to proceed with the braces removal.

(Patient's/Guardian's Name) (Date)

(Office Representative) (Date)



Figure 2: At left is a pretreatment photo of an adolescent male with a 50% Class 2 division 1 malocclusion, fractured incisal edges due to a traumatic deep occlusion, and excessive incisal embrasures between the central incisors and laterals. Center are final photos with dramatically improved smile aesthetics after enamel recontouring. At right, a bur block at our office includes the following Patterson tools: a) a fine thick diamond barrel for ceramic bracket base removal, b) a fine thin diamond flute for recontouring; c) a disposable carbide finishing bur for composite removal; d) a fine flat diamond bur for incisal-edge flattening; and e) Great White No. 2 for sectioning bands or solder joints.



Figure 3: At left, a post-treatment orthodontic photograph with unattractive gingival architecture. Center: immediately following soft-tissue laser surgery and in-office bleaching. Notice the proper gingival shape and healthy gingival contour. In addition, the gingival height of central incisors and canines is 0.5 mm above the lateral incisors. The maxillary lateral incisors often benefit aesthetically from a 0.5-mm gingival step and a 0.5-mm incisal step. Smile aesthetics could have been further enhanced by moving the zenith of the maxillary right central incisor further distal. In-office bleaching provided the final step in creating a spectacular smile. At right, the EZlase hand-piece with a 400-µm disposable tip.

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** Supporting clinical evidence: Chakravarti et al JCO Feb. 2009 "Esthetic Modification of a Hawley Retainer Using a 'Remount Bow'"



Figure 4: At left, an overlay circumferential Hawley with flat-labial bow, Adam's clasps, and stabilizing wire. The patient has U2112 and L321123 bonded retainers. Center: A bonded lower 321123 retainer using Ortho Flex Tech. The patient was treated with the Incognito braces. Right: The final extraoral photograph of an adolescent male with congenitally missing maxillary lateral incisors. The patient has U11 and L321123 bonded retainers and an overlay flipper with two lateral incisor pontics. The retainer was fabricated by AOA Laboratories.

space consolidation, I perform papilla-flattening by operating the laser at approximately 1W and moving the laser tip quickly side-to-side over the selected region. In my office, I use the EZlase 940 diode laser from Biolase with a disposable 400-µm-diameter tip.

In patients with low clinical crown height, impacted teeth, transpositions, or poor oral hygiene resulting in gingival hypertrophy, edematous gingival margins, or bulbous papillae, soft-tissue laser surgery during treatment not only aids patient home care, but also allows for better bracket repositioning and final detailing. When strictly enhancing soft-tissue architecture, I prefer to perform laser surgery one visit prior to the debanding appointment (if the tissue is healthy) or 1 month after debanding (if the tissue was edematous).

Retention and Tooth Whitening

One of the greatest challenges is maintaining aesthetic tooth position after debanding; after all, as an orthodontist your business partner is only 13 years old. In my office, I place U2112 and L321123 bonded retainers using twisted 0.010 ligature or Ortho Flex Tech from Reliance Orthodontic Products with overlay Hawley or A+ Essix retainers. I instruct patients to wear their removable retainers 22 hours per day for the first year followed by “night-time for lifetime.” (Figure 4)

I place bonded retainers one visit prior to debanding (except in lingual cases) to ensure proper bond strength and patient home care. I see patients in retention at the following times after debanding: 1 month, 3 months, 9 months,

and 1 year. Our office retention protocol and commitment to our patients after debanding has maintained the longevity of our beautiful smiles and created remarkable positive recognition throughout the South Riding community.

The retention phase is not only a critical time in maintaining smile aesthetics, but an opportunity to provide smile enhancement. In our office, adult patients can purchase bleaching gels to be used in their Essix retainers at night (the proceeds of which go to the school charity of their choosing). Additionally, adolescent patients with edentulous anterior space are given cosmetic flippers (from AOA Laboratories) at no additional cost.

Capturing the Final Photograph

Professional photography provides the finishing touches on a spectacular smile. You only need see the beautiful photographs from the practices of David Sarver, DMD, MDS, and Moody Alexander, DDS, MS, that grace the cover of the *AJO-DO* to understand the dramatic effect of great photography. In my office, I use the Canon 40D with a macro ring flash, a white-background flashbox from CliniPix with child and adult “V”-shaped check and lip retractors from Orthopli. I take all photographs myself and e-mail patients smile montages with a personal message at the end of treatment.

Debanding day is a celebratory moment for our patients and family. As an orthodontist committed to providing the best possible smiles, consider implementing adjunctive cosmetic procedures at the end of treatment to dramatically enhance smile aesthetics as well as the overall treatment

experience in your office. No matter how you read it, “orthodontics” should mean more than simply straight teeth. **OP**

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References for this article can be found with the online version at OrthodonticProductsOnline.com.



Figure 5: Left: A Canon 40D (the macro ring flash not shown). The Canon-40D takes exceptional photographs but may be too heavy for an orthodontic technician to use with one hand, particularly during occlusal photographs. Center: White background flash-box in the records room in our South Riding office. Right: “V”-shaped child and adult cheek and lip retractors with maxillary-mandibular mirror. These are the only types of retractors and mirrors we use in the office.

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