Featuring:

- Treatment of Impacted Canines with the Incognito™ Appliance System
  by Dr. Esfandiar Modjahedpour  
  
- New Incognito™ Lite Appliance System Introduced  
  
- “MIST” Molar Uprighting with Mini Implants (TADs)
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  Introduced  

APRIL 2012
Message from the President

Bill Cruise
President

As you know if you have read my introductory articles here, or have visited our 3M Unitek websites, I have been in treatment with the Incognito™ Appliance System since March of 2011. My progress has gone quite well, and by this year’s annual AAO meeting, I will be ready to have the braces taken off. I have been impressed by the speed of treatment and my easy adaptation to the customized Incognito Braces, and as a bonus, the fact that few people noticed I was wearing them.

Aesthetic treatment is important to a growing number of people, especially adults. Incognito Braces are an excellent aesthetic solution not only because they are “hidden” braces on the lingual side of the teeth, but also because the system works around the clock to keep treatment on schedule. Offering Incognito lingual braces can be a practice differentiator when patients choose among offices, while letting you maintain direct control over your patients' treatment. They can be used for even the most difficult of cases, from start to excellent finish.

The same can be said for our Clarity™ brand family of aesthetic braces. These ceramic braces have been proven in use worldwide, and offer both traditional and self-ligating styles. The recently introduced Clarity™ ADVANCED Ceramic Brackets offer enhanced aesthetics with a small size and new ceramic material that blends with tooth color for an almost unnoticeable presence. Whatever the treatment requirement, you can trust 3M Unitek as your choice for aesthetics.

You can find out more about the Incognito Appliance System in our first story related to treatment of impacted canines, which is followed by an announcement of the new Incognito™ Lite Appliance System, designed for fast and simple treatment of mild to moderate cases. You’ll also find an introduction to our new Unitek™ Treatment Management Portal | TMP. Unitek TMP is advanced orthodontic software for digital model management and treatment planning, that can also work hand in hand with the Incognito System. Other topics in this issue include a case that uses Unitek™ Temporary Anchorage Devices (TADs), bracket placement with the MBT™ Versatile+ Appliance System, a Forsus™ Class II Corrector case, Transbond™ IDB Adhesive, and more.

Altogether, I think you will find this information-packed issue well worth your time to read.

P.S. If you would like to review the updated story of my treatment, visit www.HiddenBraces.com, or follow the story on Facebook.com/HiddenBraces or YouTube.com/HiddenBraces. And if you are headed to the AAO meeting in Hawaii, stop by our booth. I’ll look forward to seeing you there.
Working in a private orthodontic practice in Krefeld, Germany for approximately 15 years, I realized that there was an ever increasing interest by my patients – adolescents and adults alike – in options for more aesthetic orthodontic treatment. Therefore, I started to collect information about available aesthetic appliance systems and soon became interested in lingual therapy with the Incognito™ Appliance System in 2004. The major benefits of this system seemed to be a three-dimensional control over the movement of the teeth and its high quality: all parts, from brackets to archwires, are custom-made and the brackets produced in a patented digital procedure.

Since I was sure that invisible orthodontic treatment would be gaining additional importance in the years to come, I decided to devote myself to this innovative topic and followed a Master Course at the Medical University of Hanover, Germany. I completed it as a Master of Science in Lingual Orthodontics in 2008. I devoted my Master's thesis to the topic “Concept for the treatment of impacted canines with an individual lingual appliance system.” And the comprehensive knowledge in lingual orthodontics has already proven its worth: today, I use the Incognito System in my orthodontic practice on a regular basis.

The following patient case will be used to describe an orthodontic treatment with the lingual appliance system.

**Patient Case**

The Incognito System is suited for all kinds of orthodontic therapy including the treatment of impacted teeth. Apart from third molars, the teeth most frequently impacted are the maxillary canines. Often, surgical exposure and orthodontic guidance are required during the treatment process.

**Initial Situation**

A 15-year-old female patient visited the orthodontic practice in Krefeld. During the first appointment, it became clear that she had a palatally impacted left maxillary canine tooth. Moreover, several teeth in the maxilla and mandible showed slight spacing and mild misalignment (Figures 1 to 4). After discussion of the treatment options with the young patient and her parents, it was decided to use the Incognito System for corrections in the maxilla due to aesthetic reasons: the young patient wanted braces that were invisible to others.

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**Figure 1:** The situation prior to orthodontic treatment.

**Figure 2:** The left deciduous maxillary canine is still in place.
In the practice, impressions were taken and sent to Top-Service (a special laboratory in Bad Essen, Germany). There, two casts were made. One model was used for a set-up. The casts of the initial situation and the set-up were scanned with a highly precise 3D device and the customized brackets as well as the individual archwires were designed in a digital procedure. The shape of each bracket was digitally plotted to the lingual surface of the corresponding tooth to facilitate exact placement in the mouth.

For the impacted tooth, a bracket was planned by mirroring of the existing right maxillary canine tooth (Figure 5). Subsequently, the Incognito™ Appliance System was produced and every single part of it – brackets, bracket slots and archwires – underwent different stages of quality control.

In a surgical procedure, the impacted tooth was exposed and an eyelet placed on the uncovered surface. The eyelet was attached to the push coil using a power thread in order to extrude the tooth (Figures 7 and 8).

Ten months after the start of the treatment, the canine tooth was completely erupted and the eyelet was removed. Subsequently, the mirrored bracket, which had been produced at the beginning of the treatment, was bonded on the canine (Figure 9). The treatment continued with a new archwire – .016×.022” NiTi – that was used for derotation, angulation and torque control of the left maxillary canine (Figure 10). The first premolar was excluded from the wire in order to obtain a favorable force. During the following appointment, a power chain was added (from the right first premolar to the left canine) to start closing spaces (Figure 11).

Fourteen months after the beginning of the treatment, the last archwire – .0175×.0175” TMA – was placed and a complete power chain added for space closure, final alignment and finishing in the upper arch (Figure 12).
The Red Dot Design Awards recognize those who distinguish their business activities through design quality, and are sponsored by the Red Dot Institute at Design Zentrum Nordrhein Westfalen, one of the oldest and most highly reputed design institutions in Europe.

In 2012, about 1,800 manufacturers and designers entered 4,500 products in the prestigious competition.

Results
After debonding of the appliance system, it became clear that a remarkable improvement had been achieved. The planned treatment result – recorded in the set-up – was obtained and the patient and her parents were highly satisfied with the aesthetic appearance (Figures 13 to 16).

Conclusion
In the present case, the young female patient had the explicit wish to be treated with an orthodontic appliance that was not visible to others. This demand for aesthetic treatment options is clearly growing in Germany, and the results obtained with a system like the Incognito System are highly precise. However, working with the Incognito System requires extensive knowledge – that is why a certification course is obligatory for all users. For those who are ready to invest some time, the lingual technique and the innovative orthodontic system can open up new opportunities for high-quality treatment of patients with high expectations.

Case photos provided by Dr. Estandiar Modjahedpour.

3M Wins Multiple Awards for Design Excellence

3M was recently recognized with 13 awards for outstanding product design by two of the world’s most distinguished design competitions. The accolades highlight the company’s commitment to deliver on 3M’s promise to bring practical and ingenious solutions to the world.

3M Winners of the 2012 Red Dot Design Awards:
• Incognito™ Lite Appliance System enables orthodontists to take lingual treatment to the next level. Its low profile customized brackets and robotically bent wires work together to deliver a targeted result and enhanced patient comfort. (Read more about this product on page 6)
• Scotch® Box Dispenser for Scotch® Magic Tape
• Scotch® Magic – A Greener Choice Glass Dispenser
• 3M™ Mobile Projector 225a
• 3M™ ESPE™ Scotchbond™ Universal Adhesive 3

3M Winners of the 2011 GOOD DESIGN Awards:
• Filtrete™ Slim Water Pitcher
• Post-it® Z-Notes Natural
• Post-it® and Scotch® Pebble Dispensers
• Scotch® Pop-Up Tape Refillable Desk Grip

3M Product Winners of Both Awards:
• Filtrete Water Station
• Scotch-Brite™ Windows Cleaner

More information on 3M products can be found at www.3M.com.
3M Unitek has launched the Incognito™ Lite Appliance System for treatment of moderate anterior crowding as well as relapse cases. Like the traditional Incognito™ Appliance System, the Incognito Lite Appliance System features customized brackets mounted on the inside of the teeth, but focuses on the "social six" teeth to deliver quick results and more comfortable treatment for patients who have less complex malpositions. Patients can expect the same precise treatment results available with the traditional Incognito system.

The new Incognito Lite Appliance System was developed after years of experience with the traditional Incognito Appliance System. A reduced number of brackets compared to the classic Incognito System leads to increased ease of use. Users also benefit from improved accessibility of the lingual areas of the anterior teeth during the placement of the Incognito Lite Appliance System. According to trial users, patients benefit from quick acclimatization and high comfort wearing the appliance.

The Incognito Lite Appliance System has been awarded the prestigious international design prize, The Red Dot Award: Product Design 2012. It received the globally sought-after Red Dot for its fine design in health care products from a group of 4,515 submissions. The award – the Red Dot – has established itself internationally as one of the most appreciated quality seals for outstanding designs.

The system is comprised of customized robotic archwires and brackets that are individually plotted through digital technology to the lingual surfaces of the teeth. Due to simplified handling, the Incognito Lite Appliance System perfectly complements the Incognito Appliance System and offers ease-of-use for orthodontists who want to enter into the world of lingual orthodontics.

For more information about both the Incognito™ Lite Appliance System and the classic Incognito™ Appliance System, contact your 3M Unitek representative. See the back page of this issue for information on upcoming Incognito Appliance System training and certification courses. There is also a related article in the previous issue of the Orthodontic Perspectives, Vol. XVIII, No. 2. See “The Incognito™ Appliance System and Successful "Limited" Treatment” by Dr. Adam Schulhof.
"MIST” Molar Uprighting with Mini Implants (TADs)

by Dr. Jose A. Trespalacios

Dr. Jose A. Trespalacios is a graduate of the Technological University of Mexico (1991) and received his degree in Orthodontics in 1996. He is a former Professor of Orthodontics for the Periodontics Department of the Michoacán San Nicolas de Hidalgo University. Dr. Trespalacios has been invited as a professor to teach his TADs course to several universities in Mexico, and has lectured on this subject in more than 10 countries. He has a private practice in Morelia, Michoacán, since 1996. He is a Member of the AMO, AAO and the WFO.

Introduction

Our society, increasingly aware, informed and demanding, has been a significant spearhead in the past few years for technology to make a radical orthodontic revolution, by requiring us to address the need for minimal patient compliance and maximal anchorage control.

The push in this direction has resulted in the advent and popularization of self-ligating braces, lingual braces, invisible orthodontics and of course, mini implants (TADs).

Mini implants have appeared with a promise of delivering powerful results in solving challenging malocclusions that exceed the limits of conventional orthodontic procedures. They are capable of offering solutions in various types of treatment that previously were extremely improbable and very complicated to perform (Figures 1A-B and 2A-B). Another reason for the popularity of mini implants is the ease of their placement within the orthodontist’s office, without the services of another dental specialist.

But the reality of mini implants today is that many treatments performed with them are based on our common sense and are somewhat empirical. This leads to the need to seek more established proposals and better structured protocols. If we look further, it is easy to see that when modifying our anchorage, the biomechanics change radically (Figure 3A-C).

Figure 1A-B: Profile change with absolute anchorage using mini implants, a favorable changes in lip incompetence.

Figure 2A-B: Gummy smile changes after use of mini implants.

Figure 3A-C: Excessive retroinclination and open posterior bite due to the use of regular mechanics.
Facing the reality of the extremely rapid growth in the use of mini implants, there is an increasing need to create a complete system to help the orthodontist perform different types of treatment with these attachments (Figure 4A-D) and to avoid having common sense as the only guide. MIST (Mini Implant Simplified Treatments) is developed as an option to give confidence to every new user.

MIST is a system created to help in the use of mini implants in implementing various treatments. It is designed to give orthodontists confidence, by providing them with the experience of many years work of the leaders in this field who have used mini implants to obtain convincing results.

This system relies on three fundamental points:

1. Presentation of a simple and effective protocol for the placement of mini implants, which we mainly base on the placement protocols previously described by Dr. Jason Cope, with a few additions. We propose the insertion in just a few chosen safe areas which allow easy access, are comfortable for the patient and have a high success rate for the completion of the great majority of treatments. Following placement, it is only necessary to perform the required biomechanics.

2. Presentation of a diagnosis classification system with mini implant treatments so it can generate an organization of the various treatment options. We divide the classification into four main items: Anteroposterior, Vertical, Transversal and Special Problems.

3. Proposals of effective biomechanics for different orthodontic cases through simplified treatments. In the Diagnostic classification system if we go to Vertical Problems, we will find a subsection called molar inclination, and it proposes this treatment to upright molars.

One of the anteroposterior Vertical Problems is the mesially tipped molar. In the following case, the MIST system has been used to guide the treatment process.

**Molar Uprighting**

Second molar impaction is a very challenging disturbance because the vectors of movement required to upright the molar with intrusion is particularly difficult to accomplish and requires proper clinical, radiological, and biomechanical evaluation and a good appliance selection for successful treatment results.

The incidence of second molar impaction revealed by panoramic radiograph studies has been reported as 0.03% to 0.04% of all impacted teeth (Figure 20).

It is usually thought that the correction of mandibular molars can be accomplished by the specialist only when orthodontic appliances are in place, and other orthodontic problems are being resolved. But this is not necessarily correct. A mini implant placed in the buccal bone buccal to the mandibular molars can provide both a buccally directed force and an intrusive force without any orthodontic appliances besides a molar tube and a wire.

**Patient Preparation**

1. Select a 6 to 8 mm (Figure 5) mini implant to be placed in the mesiobuccal area of the adjacent tooth mesially to the tipped molar (Figure 6A-B). As we said before, one of the most reliable mandibular buccal cortical sites is found mesial to the first molar. From there we can have an absolute anchorage made by the mini implant, creating no reactive forces to the adjacent teeth, and therefore no negative side effects.

2. Insert between the roots perpendicular to the bone surface, trying to position it on attached gingiva preferably 3 mm from the buccogingival line (Figure 7A-B) to avoid harming the buccal mucosa when we activate the system (Figure 8). From here we can provide intrusive and distal force without any other orthodontic appliance on the anchorage unit.
2. Make a loop with a diameter of about 2 mm in one edge (Figure 10A-B).

3. Mark and bend 2 mm away from the loop to 90° (Figure 11A-B).

4. Measure the distance between the mini implant and the distal part of the tube (Figure 12A-B).

5. Cut and place a protective tube 20% larger than the previously measured distance until reaching the anterior bend of the wire (Figure 13A-B).

6. Make a loop on the back edge of the protection tube, and leave the arm at 45° of the internal angle. You should leave at least 5 mm after cutting (Figure 14A-B).

3. Place a mini tube from the opposite side molar in the distobuccal face with the hook facing mesial and gingival. In case you have a band or a tube, you can use it as long as you have wings to tie an elastic from behind (Figure 6A-B).

**Fabrication of the Wire Performed to Upright**

1. Take a TMA wire bar 17×25" (Figure 9A-B).

2. Make a loop with a diameter of about 2 mm in one edge (Figure 10A-B).

3. Mark and bend 2 mm away from the loop to 90° (Figure 11A-B).

4. Measure the distance between the mini implant and the distal part of the tube (Figure 12A-B).

5. Cut and place a protective tube 20% larger than the previously measured distance until reaching the anterior bend of the wire (Figure 13A-B).

6. Make a loop on the back edge of the protection tube, and leave the arm at 45° of the internal angle. You should leave at least 5 mm after cutting (Figure 14A-B).
System Activation

1. Insert the posterior part of the wire distal to the tipped molar tube (Figure 16A-B).

2. Pull and engage the elastic on the hook (Figure 17A-B).

3. Push the wire and place the loop around the head of the mini implant making pressure on the tipped molar (Figure 18A-B).

4. Place a portion of flowable composite over the head of the mini implant to prevent the wire to disengage (Figure 19A-B).

5. In this case a force is generated to distalize, intrude and rotate the molar counterclockwise.

6. Wait until the uprighting is completed and it can be finished with braces if necessary (Figure 21A-B).

System Deactivation

1. Cut the elastic from the hook.

2. Break all the bonding material over the mini implant head with a hard wire cutter.

3. Remove the loop from the head.

4. Pull out the wire from the tube or band.

5. Use the driver to engage the implant head and then rotate it in a counterclockwise direction until it is sufficiently loose to remove with a cotton forceps. 

7. Insert an elastic chain in the posterior loop (Figure 15A-B).
Conclusions
It is important to understand the strengths and limitations in mini implant treatment. MIST should be further developed with the experience of doctors interested in this field, and each time include more effective procedures and methodologies, such as the parallelization of molars. In this article I have tried to show how to do this treatment with just a few appliances, putting the mini implant in a safe, accessible area, and with emphasis on patient comfort, which is one of the most important premises in the system. If you would like more information on the MIST System, there is further discussion on my website, www.ortoimplantes.com.mx.

[Note: Currently in Spanish, English version being developed. – Editor]

Regarding the selection of the brand of mini implant to use, I am convinced that the Unitek™ Temporary Anchorage Device (TAD) System is a great choice. Unitek TADs belong to the self-drilling and self-tapping group, we can get all the instruments required to place them in any area, and Unitek TADs have a diameter of 1.8 mm, which makes a fracture extremely unlikely. We can also take advantage the Unitek™ TAD O-Cap to make a laboratory apparatus, or simply to give the patient greater comfort. But one characteristic I really like is that I don’t need to inventory a huge stock of the implants, because with just 3 measures, 6, 8 and 10 mm, I can place a reliable implant in my patients.

I would like to thank Dr. Mohammed Razavi and Dr. Jair Lazarin for their help and support in the preparation of this article.

Case photos provided by Dr. Jose A. Trespalacios.

References
8. Park HS, Kiwon OH. Non extraction treatment of an open bite with microscrew implant anchorage. Am J Orthod Dentofacial Orthop; 2006;130;391-02

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In our previous article on bracket positioning, we detailed techniques for improving the vertical and axial precision of the bracket placement procedure. These techniques can be used in direct as well as indirect bonding, but in our opinion it is easier to adhere to the principles when placing the brackets on a hard stone model rather than on the patient in the chair.

We will now illustrate this with clinical examples of bracket placement and the final outcome of incisal edge modification and accurate technique.

The advantage of using the placement technique described in the previous article is the ability to get accurate and reproducible results, but as always when dealing with nature there are variations where standardized techniques will not be sufficient. Asymmetric gingival profile, unilateral wear of teeth as well as anatomical particularities will require further thought on the bracket height placement. The bracket placement charts allow for individualization whenever the clinician feels the need to “override” the system.

Our goal for the anterior segment is to achieve parallelism between the upper incisal edges and the bracket slots. This will facilitate an aesthetic axial inclination of the incisors. If we use the same technique for the lower incisors, we can achieve the ideal protrusive functional occlusal movement with the upper central incisors contacting the four lower incisors without posterior tooth contacts.

In Figure 3, a young female Class I patient required extractions for the correction of crowding. In this case, the incisal edges and the labial surface of the upper left cuspid were re-contoured prior to the impression for the indirect bonding procedure. This makes the bracket placement more reliable, but many clinicians may find it more comfortable to do the enamel reduction during or towards the end of treatment. They may therefore have to modify the height measurements to allow for the incisal reduction later.
Figure 3: This patient shows irregularities in the incisal edges of the upper incisors. Here, reshaping of the incisal edges is recommended prior to bonding the brackets with either a direct or indirect bonding system.

Figure 4A-B: Reshaping of the incisal edges of the upper central and lateral incisors to enable perfect bonding, with parallelism between bracket slots and incisal edges of the teeth.

Figure 5A-B: Plaster model after reshaping of anterior teeth, ready to start indirect bonding; silicone transfer tray with brackets to start indirect bonding.

In this situation, a hard stone model is fabricated after the incisal edge modification, and SmartClip™ SL3 Self-Ligating Appliances are placed directly on the stone model after a separating agent is placed on the model. An indirect tray is produced to carry the brackets to the exact position on the tooth surfaces (Figure 6A-C).

Figure 6A-C: Indirect bonding of the upper arch and use of a round .014” superelastic Nitinol archwire combined with an active laceback ligature placed from canines to first molars to start distalization of the teeth.

Following leveling and alignment with Nitinol archwires, the remaining space was closed on .019×.025 Stainless Steel archwires. We frequently use braided archwires to allow for the final settling of the occlusion prior to debonding. The use of the .019×.025 dimension is particularly important when using passive self-ligating appliances, as minor rotations can very easily reoccur.

The final outcome illustrates how the incisal aesthetics have been improved in both arches along with the facial aesthetics (Figures 8 and 9). It would have been difficult to achieve this result, involving relatively few adjustments through treatment, without initially following the important MBT™ Versatile+ Appliance System protocol of accurate vertical and axial bracket placement.

Figure 7: Finishing treatment with a .019”×.025” braided archwire. A perfect parallelism can be observed between upper bracket slots, lower bracket slots and the incisal edges of the teeth.

Figure 8: End of treatment with a pleasing aesthetic outcome. The incisal edges are parallel to the horizontal plane.

Figure 9: End of treatment with a pleasing facial appearance. There is perfect harmony between incisors, incisal edges, upper lips and lower lips.

In our next feature we will illustrate some techniques for in-office tray manufacture suitable for use with chemical cure and light cure techniques for indirect bonding.

The first article in this series can be found in Orthodontic Perspectives Vol. XVIII, No.2. Case photos provided by Dr. Hugo Trevisi.
After receiving her DDS summa cum laude from Ohio State University, Dr. Lisa Alvetro completed her residency at Case Western Reserve University and now lectures there as an Associate Clinical Professor teaching Practice Management. After more than 18 years of private practice in Sidney, Ohio, Dr. Alvetro continues to focus on team development, innovative products and efficient processes to sustain a quality practice.

Incorporating the Forsus™ Class II Corrector into a treatment plan for Class II patients is both a reliable and predictable treatment option. Its independence from patient cooperation, along with ease of insertion and activation, makes the appliance readily accepted by patients and clinicians. The force vectors generated by the appliance make it an excellent choice over Class II elastics in Class II deep bite patients. We find the most effective way to utilize a Forsus Corrector is to treatment-plan its use from the initial consultation in Class II patients.

Our clinical goal prior to Forsus Corrector placement is to establish maxillary and mandibular incisor position and torque. During treatment, when the Forsus corrector is in place, maintaining the incisor torque and position is important to obtain a Class I relationship. In most Class II deep bite patients, the duration of Forsus Corrector application is six months. After removal, settling of the occlusion may require box elastics. Finishing and aesthetic detailing is accomplished prior to debond.

Severe Overbite Case
Patient: Female: age 14 years, 1 month
Diagnosis: Class II malocclusion
- Severe overbite
- Moderate overjet
- Mild mandibular crowding
- Moderate maxillary crowding

Treatment Plan:
- .022 slot SmartClip™ Self-Ligating Brackets, MBT™ System Rx with -6 degrees of torque in mandibular incisors
- Forsus™ Fatigue Resistant Device to correct Class II relationship and aid in bite opening in the mandibular arch
- Maxillary arch will be chained molar to molar while Forsus Corrector is in place

Initial

Figure 1A-H: Initial: Moderate with a deep bite.
Figure 2: Initial cephalometric x-ray.

Figure 3: Initial lateral tracing.

Table 1: Initial ABO analysis.

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Forsus™ Correctors Placed

Figure 4A-F: Pre-Forsus™ Correctors progress.

Figure 5A-E: Post-Forsus™ Correctors progress.
Figure 6A-H: Final.

Figure 7A: Initial cephalometric x-ray.
Figure 7B: Final cephalometric x-ray.

Figure 8A: Initial lateral tracing.
Figure 8B: Final lateral tracing.

Figure 9A: Initial facial profile.
Figure 9B: Final facial profile.

Figure 10: Superimpositions: Black initial. Green final treatment.

Table 2: Final ABO analysis.

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<td>Soft Tissue</td>
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<td>ANB (°)</td>
<td>L1 – GoGn (°)</td>
<td>Lower Lip</td>
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<td>Upper Lip to E-Plane (mm)</td>
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<td>Upper Lip to E-Plane (mm)</td>
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Figure 11: Treatment Timeline.

**Treatment Timeframe**
- **Treatment Start:** 01/19/2009
- **Forsus™ Correctors Placed:** 01/3/2010
- **Forsus Correctors Removed:** 06/14/2010
- **Forsus Correctors Duration:** 5 months, 2 weeks
- **Treatment End:** 02/10/11
- **Treatment Time:** 24 months, 3 weeks

*Editor’s Note:* This case as well as others by both Dr. Alvetro and Dr. William Vogt are contained in a new 3M Unitek resource: *Forsus™ Fatigue Resistant Device Treatment Guide.* For those considering Forsus Correctors or those experienced with Class II Correction with Forsus appliances, this Guide offers valuable treatment insights. REF 012-264.

Ask your 3M Unitek Representative for details.

Case photos provided by Dr. Lisa Alvetro.

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– Dr. John McDonald (6/22/12)

**July:** *Incognito™ Appliance System Wires & Ties: How, When and Why*  
– Dr. Brandon Comella (7/18/12)

**September:** *Better Bonding to Non-Enamel Surfaces*  
– Dr. Fredrik Bergstrand (9/14/12)

Note: Webinars just completed in March and April:
- *Variations in Forsus™ Class II Correctors - Part IV*  
  – Dr. Lisa Alvetro (3/23/12)

*Bonding Techniques for Lingual Appliances*  
– Cathy Sundvall (4/18/12)

These presentations, as well as Dr. Alvetro’s previous webinar lectures on Forsus Correctors, are archived for your 24/7 viewing.

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I have used the indirect bonding technique on every patient I’ve treated for the last 10 years. There are many steps involved in the indirect bonding procedure and success is dependent upon being extremely particular regarding every single step of the procedure. We explain to our patients prior to the procedure how I have taken the time to carefully place the brackets in the laboratory. We also explain how this allows for more accurate placement.

The advantages of indirect bonding make it well worth the extra lab time involved. For instance, brackets can be placed much more easily and more accurately at the lab bench versus in the mouth. Indirect bonding also frees up my time, because the clinical procedure can be 100% delegated. Which brings up the most important reason I use indirect bonding: it saves my neck and my back.

**Light Cure vs. Chemical Cure**

I have used both light cure and chemical cure adhesives for indirect bonding. For me, the main disadvantage of indirect bonding with a light cure adhesive is that the trays are either time consuming to fabricate (vacuum or pressure formed types), or the materials can be expensive (clear impression type materials). Another disadvantage is that light curing is more labor intensive and more time consuming than allowing the material to set chemically. These disadvantages are partly why I have come to appreciate chemical cure indirect bonding.

In the past, I found the main disadvantages of chemical cure indirect bonding were excess chunks and flash adjacent to the brackets and an unfortunate yellowing of any excess resins. An advantage of chemical cure indirect bonding is reduced staff time compared to light cure indirect bonding. For instance, with Transbond™ IDB Pre-Mix Chemical Cure Adhesive, the tray can be removed four minutes after insertion. In fact, the chief disadvantages of using chemical cure indirect bonding systems have been eliminated with Transbond IDB Adhesive.

**Transbond™ IDB Chemical Cure Adhesive**

Every bonding system has its plusses and minuses. But in my mind, there are no longer any disadvantages to doing indirect bonding since I began using Transbond IDB Adhesive – flash is controlled, discoloration is eliminated and chair time is minimized.

Transbond IDB Adhesive comes in vials similar to other chemical cure adhesives. It is based on familiar orthodontic resin chemistry of Bis-GMA and TEGDMA. It should be stored in the refrigerator to ensure the shelf life, but it can be used at room temperature depending upon the amount of working and setting time you are comfortable with. – continued on next page
Because Transbond™ IDB Adhesive is a chemical cure adhesive, it is important to completely mix equal parts of both Resin A and Resin B for a full 10 seconds to ensure the best possible curing. One nice advantage of mixing the adhesive is that the set time can be gauged by observing the hardening of the mixed adhesive on the brush and in the mixing well.

There were some challenges during my initial bonding with Transbond IDB Adhesive, partly because there are so many steps and variables involved in the indirect bonding process. Since then, I have bonded over 23 cases with Transbond IDB Adhesive. My bond failure rate has been 1.3% at the bonding appointment.

I tell my staff that the key to indirect bonding is attitude! When incorporating anything new into your bonding process, you should expect some initial challenges. Every step of the procedure is crucial to your success. Obviously, you have to start with good materials, and Transbond IDB Adhesive fills the bill. Good luck.
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