Oral hygiene in orthodontics

By Curaprox UK Ltd

During orthodontic treatment, many patients seek advice on how to clean their braces effectively and gently. Since ordinary toothbrushes and interdental brushes are not suitable for orthodontic appliances, Curaprox UK is now offering the new Ortho Kit. This specialised kit contains the CS ortho ultra soft toothbrush, the CS 1009 single brush, the CPS 07, CPS 14 and CPS 18 interdental brushes, and ortho wax. The Ortho Kit is a perfectly combined set of products and gives dental professionals the best option for improving orthodontic patients’ oral hygiene.

When used correctly, the right toothbrush should dislodge and remove plaque through small circular movements along the gingival margin. Demonstrating the right balance between comfort and effectiveness, the CS ortho ultra soft toothbrush is specifically designed to clean both teeth and orthodontic appliances. With 5,460 filaments, the compact brush head allows for easy cleaning of the brackets’ outer surfaces and its shape helps patients brush at the right angle. Each filament has a diameter of 0.1 mm, allowing the production of a head with many fine, though durable, bristles. The groove in the middle of the brush head accommodates the brackets and wires to allow the brush to clean the teeth better. In addition, the octagonal handle facilitates brushing at an angle of 45°. The CS ortho ultra soft toothbrush cleans efficiently and thoroughly and has gained an outstanding reputation among orthodontic practices and patients.

Patients wearing orthodontic appliances have to exercise particular care in their oral hygiene, since bacteria can accumulate more easily around the brackets and wire surfaces. A single-tufted toothbrush, the CS 1009 is particularly suited for use on wires and brackets. The brush adapts to the contours of the brackets, can easily be moved from the top to the bottom, and is gentle on the gingivae. The CS 1009 also adapts to the anatomy of the gingival margin, making it an indispensable expert tool that every orthodontist should use.

How to use interdental brushes in orthodontic care

Interdental brushes allow for effective prevention of dental caries and periodontal disease and should ideally be used before, during and after orthodontic treatment. To maximise the potential foratraumatic, effective and acceptable cleaning without harm to the papillae, CURAPROX offers ultra fine bristles, extra thin wire cores and a durable system for all of its interdental brushing systems. Developed to suit the orthodontist’s needs, the CPS 07, CPS 14 and CPS 18 interdental brushes are especially capable of cleaning wires and brackets. With an accessibility of 2 mm and an effectiveness of 8 mm, the CPS 18 allows for excellent cleaning of the outer wires, whereas the CPS 14 is especially suitable for the inner wires. The CPS 07 allows for complete cleaning of the gaps between the teeth.

Our famous brand CURAPROX has placed special focus on the comfortable use of international brush holders for the specific needs of orthodontic patients. For example, the UHS 451 holder has a smart click system on which the CPS 07, CPS 14 and CPS 18 interdental brushes can easily be mounted. Patients can also use various other holders.

Another key element of the Ortho Kit, the ortho wax helps patients become used to their appliance and protects the oral mucosa from abrasion and injury by bracket edges. The transparent and tasteless wax can easily be placed on to the brackets once warmed and is available in a convenient carrying case. Finally, the Ortho Kit contains a brochure with tips and advice on how to clean teeth and appliances effectively. It provides specific oral hygiene instructions for each product, as well as information about proper nutrition.

Buy the Ortho Kit now at shop.curaprox.co.uk/professional

Curaprox UK presents the new Ortho Kit. (Photograph: Curaden AG, Switzerland)
Insignia™ Resolves Adult Open Bite with Straight-Wire™ Finishing

Case Study

By Dr. David González Zamora, Spain

Pretreatment Diagnosis
Adult female, mesofacial, skeletal class I, open bite. Patient suffered from frequent headaches.

Treatment Plan Objectives
Close her open bite while maintaining vertical relationship of upper anterior incisors.

Appliance Used:
Insignia SL

Treatment plan notes submitted with this case:
• Insignia Archform
• Laterals should be shorter than centrals
• Align marginal ridges
• 3mm of overbite
• Expansion through molars and premolars
• IPR between premolars

Treatment Discussion
The patient had a complete open bite due to the habit of atypical swallowing. To perform a bite closure, it is necessary to achieve perfect alignment and leveling of the teeth as well as obtaining accurate torque. Only then can we face the upper and lower occlusal planes. In addition, the two arches have been expanded at premolars and molars. The key to making a bite close quickly and easily is applying forces mesial to the arcade center of resistance, just so get a rotation of both occlusal planes.

Despite using an extrusive mechanics with previous elastics, you can see in the photo finish smile that the relationship of the upper incisors has not worsened, thanks to the relative position of the brackets at the time of cementation. The patient also followed a rehabilitation treatment neuromuscular speech pathologist, to ensure the future stability of the case.

Finishing Notes
No debonds, no wire bends. Just occlusal adjustment.

TREATMENT SEQUENCE

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*Stock round wire

Appointment photos featured in this case study.
“With 4-D printing we will be able to provide much more precise treatments”

Interview with Dr Sherif Kandil, experienced practitioner, CEO of K Line Europe GmbH

By Dr Sherif Kandil, Germany

We all heard about 3-D printing, what does 4-D stand for? Yes, that is true that we have been hearing lately only about 3-D printing, nowadays 4-D refers to the dimension of time. 4-D refers to additive manufacturing or printing of special materials that have certain memory characteristics built in a specific layering system on a 3-D printer yet was designed or using CAD on a software that dictates the material reshaping and response to stimuli by time.

Can you tell us more about your recent activities in concern to 4-D technology? After I patented the idea of 4-D printing in orthodontics, I moved on to applying this technology in our R&D labs in K Line Europe in Düsseldorf, Germany. 4-D printing technology has been shifting engineers’ opinions and even many in the medical field on the possibilities and chances that have been unleashed after the introduction recently of this technology. I have been focusing on applying this science to clear aligners and also on orthodontic wires using advanced 3-D printers and re-engineered Meta materials.

What are the challenges that current clear aligners and fixed braces face in the market? Currently, I believe there are three main challenges we face in orthodontics when it comes to clear aligners or fixed orthodontics. First is the manufacturing process, as there are many steps when manufacturing clear aligners, thus rendering the final result less accurate, more expensive, more time consuming and more control required.

Second is the complexity of applying the exact designed forces on the software for manufacturing the clear aligners, you might need accessories, more attachments on the teeth, etc. to overcome the limitations of clear aligners. Third, is the comfort of the patients as with clear aligners or braces patients need numerous amounts of aligners or wires to be changed throughout the treatment.

How will 4-D technology tackle these problems? 4-D technology promises to solve the aforementioned points and more. A short explanation of how this works is as follows. Teeth are normally scanned, then through the 3-D CAD software, aligners or orthodontic wires are made as a negative replica of the model stage representing the corresponding movement that shows where and how teeth need to be moved. The software allows you to put in joints and layers that allow contraction at one side and expansion on the other, and thus on the 3-D software we could stage all the aligner or wire shapes that will be self-morphed by the material.

The object (i.e. aligner or wire) is 3-D printed using special Meta material that is responsive to the built-in software joints and layers. When the object is placed in the mouth there is a self-morphing mechanism for the material to change its shape which is salivation (i.e. fluids) and 37 degree body temperature (i.e. heat).

So simply, the patient wears an aligner or wire on brackets that keeps changing its shape gradually to reach the final form through applying light continuous forces on teeth. Each aligner or orthodontic wire can be worn for over 5 months depending on the movements that were programmed on the software from the initial planning stage.

How would you describe the advantages that will be implemented in orthodontics using the 4-D concept? The advantages are quite clear, as patients will enjoy a more friendly treatment where they don’t have to visit their orthodontist as regularly as they used to as this coincides with the recent treatments of distant treatments applied in orthodontics nowadays. Also many treatments won’t need the refinements as they did before, such as the clear aligner treatments, which has had negative experiences. Most of all, the precision of force application and distribution is way more precise as with the software, the exact force amount and time will be controlled. Furthermore, the aligner thickness can be altered depending on the need and can be controlled throughout the whole treatment to keep the force and anchorage distribution absolutely stable and avoid the variability that was experienced with previous clear aligner systems.

When do you think this technology will be available on the market? We hope we can bring this technology into light very soon, yet a rational expectation would be to expect it to enter the market in 2020 and change many of the current treatment concepts in orthodontics.

Technology is shifting really quickly these days, how do you see it evolving in the next few years in orthodontics? I see 4-D printing and augmented reality to be one of the game changers in medicine in the upcoming years.

How could we get more information and even follow up this upcoming high technology? Currently, the internet contains many approaches in 4-D tech, yet for orthodontic application you could follow up more on the following webpage www.kline-europe.de/4dortho Thank you for the valuable input and we hope to hear even more about the new inventions soon.

Thank you for this opportunity and I hope that this advanced technology can bring more welfare to our patients.

Editorial note: This interview has been prepared in collaboration with the K Line Europe GmbH dental coordination team.
The document page is designed as a subscription form for the ortho magazine. The title of the magazine is prominently displayed at the top in large text. The page contains a brief text about the magazine's focus, starting with "practice management... short-term gains... long-term problems?" and mentioning "Vibration therapy in orthodontics: realising the benefits." There is also a section for shipping address details, including fields for Name, Address, Zip Code, City, Country, and E-mail. Below these fields, there are options for payment methods: PayPal and Credit Card. The address fields are not filled in, and the payment method is not selected. At the bottom of the page, there is a call to action "SUBSCRIBE NOW!" along with contact information: F +49 341 48474 173, subscriptions@dental-tribune.com, and a website link: www.dental-tribune.com. The page also mentions subscription rates, with EUR 22 per year for customers in Germany and EUR 23 per year for customers outside Germany, both including shipping and VAT. The subscription renewal details state that the subscription will be renewed automatically every year until a written cancellation is sent six weeks prior to the renewal date. The page also includes a note that SPRING 2016 is issue 1, Vol. 1 of the magazine, with ISSN 1868-3207. The design includes a yellow background with a picture of lips and a red pattern. The magazine covers topics such as practice management, trends & applications, vibration therapy, and industry report.