Getting braces is a time of both excitement and dread. For kids and teens, braces can be arite of passage. For adults, it is an opportunity to invest in an improved appearance and more attractive smile. With this excitement comes a bit of worry for patients (and parents) though—how will I (or how will my child) manage oral hygiene with all this apparatus in the way?

The orthodontic provider feels the same concern. Once the braces go on, brushing becomes much more challenging, and poor brushing leaves patients at risk for gingivitis, white scars and tooth decay. Ensuring adequate home care is one of the biggest challenges in most orthodontic offices. Unless patients adopt some of the oral hygiene practices we recommend, they are not going to attain the incredible results that are possible.

Like many practices, we are seeing more adult patients every year—currently about 25% of our patients are adults. Often, they are parents of our younger patients, through their child’s experience, parents can see how the technology has changed since they were kids. Braces are greeter, easier to manage, and often have shorter treatment time. Contemporary oral hygiene products also make it easier to get from braces on to the end goal of ‘beautiful smile’.

Have fun, will brush: Improving orthodontic outcomes with effective home care

By Dr Dana Van Elslande, Canada

A comprehensive programme

Our practice adopted Crest Oral-B Ortho Essentials because we wanted a comprehensive programme to help encourage and motivate patients with their oral hygiene. Programme elements include an Office Oral Hygiene Visual Analogue Chairside (Fig. 1), commitment letter, communication letters for patients and parents, a ‘how to care for your braces at home’ video, and a regimen of advanced home care products: an oscillating rotating power toothbrush, stannous fluoride toothpaste; fluoride mouth rinse; and an orthodontic specific dental floss. These four products work together to help reduce plaque buildup and protect teeth from gingivitis, white scars and cavities.

Unique aspect of this programme is that the Office Oral Hygiene Visual Analogue scale interacts with our management software, allowing us to graph patient’s progress over time so we can show our patients (or mom and dad) how well they are doing with self-care. Together with patients, at each appointment we score their oral hygiene on a scale from 1–5. A score of ‘1’ indicates very poor oral care, whereas ‘5’ indicates excellent care. These scores are entered into our software programme, which has the ability to generate a graph where we can monitor how the oral care is progressing throughout the patient’s treatment. It is a wonderful tool to use with children and adults alike, as it provides us with a visual representation of how performance has either improved (meaning we need to celebrate) or declined (meaning we need to make changes before irreversible damage). In addition, we incentivize patients by giving tokens at each visit if they receive scores over a ‘3’. These tokens can be cashed in for merchandise or gift cards to their favorite stores or on-line sites.

Noticeable outcomes

The Ortho Essentials kit contains four key products that work together to help achieve the outcomes we want.

The Oral-B PRO 5000 Smart Series Power Toothbrush with bluetooth technology with ortho brush head is a cornerstone of the kit. The Ortho brush head is specifically designed to clean around brackets and wires, which can be very challenging to manage without additional tools. The kit’s built-in technology enhances compliance with good brushing habits. Patients begin use by downloading a free app onto their mobile device (usually a phone), then sync their power brush to the app. Every time the patient brushes, the app receives brushing data, and the patient gets immediate feedback on the mobile device screen. Using the built-in minute timer, patients can see how long they have been brushing, and a red light ‘alerts’ them to stop if they are using excessive force. On the mobile screen, the app provides information about the brushing mode, battery status, and a reminder to change the toothbrush head.

To keep the user experience fresh—and to keep kids checking in—the app also incorporates news, weather, and oral care tips. Additionally, the Focused Care feature can be customized to show areas of the mouth that need special attention, so the patient can brush those areas again after the regular 2-minute brushing is complete.

Crest Pro-Health toothpaste contains stannous fluoride—an active ingredient well-known to protect against plaque, gingivitis, cavities, dietary acid erosion, and sensitivity. Regular use of this paste has been clinically shown to inhibit plaque build-up during brushing. The Crest Pro-Health Advanced with Extra Deep Clean Rinse offers additional anti-cavity fluoride protection. Oral-B SuperFloss End-to-end floss threader that helps patients (particularly kids) easily thread floss under the braces wires.

The four components of the Ortho Essentials kit work together to keep the teeth and gums protected and healthy. After braces are on, many patients brush in the morning, after lunch if possible, and then thorough-ly before bed. The most important session is a very careful brushing right before bed (with of course, no food or drinks afterwards). The combination of mechanical brushing and flossing plus chemical paste and rinse action helps to reduce plaque build-up and protect against cavities. This regimen of oral hygiene provides excellent care for patients without braces as well.

Enabling compliance

A proven compliance oral care regimen is essential to successful orthodontic outcomes. If a patient is not able or willing to comply, the braces may have to be removed and treatment delayed until he or she is able to comply. So we do everything possible to set patients up for success. Technique is very important, we show our patients from the very beginning how to use each component in the kit, and we review their technique whenever we see that oral hygiene is slipping.

If a patient has certain areas they are struggling with, we can use the built-in technology to programme these areas into a diagram on their mobile device app. By working with a cell phone and the Bluetooth-enabled toothbrush, the app provides immediate feedback during home care. With these tools, the patient can continue to work on trouble areas between scheduled appointments or receive feedback on their progress.

Dr Van Elslande

As an orthodontist, Dr Van Elslande has specialized training in orthodontics. She received her Bachelor of Medical Science, Doctor of Dental Surgery degree and her Masters in Clinical Orthodontics from the University of Alberta. www.imkloane.ca
Archwire Sequence for Insignia®: a Custom Bracket System with a Bright Future

By Ormco

Abstract

Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engineered production of custom brackets, based on the desired final alignment. The objectives of these rounds are to create a custom appliance with an underlying skeletal support complemented by digital simulation of the final finishing process. Bracket-positioning jigs are fabricated to assist the clinician in accurately positioning each bracket on each tooth. The precise placement of each patient is critical for producing a 3D alignment. The purpose of these round CuNiTi archwires is to produce a 3D alignment (Fig. 2a). Then, a 3D alignment is accomplished for the final finishing archwire (Fig. 2e). The Insignia® system is a reverse-engi...
tooth movement is relatively slow. Controlling PDL compressive stress is a high priority for advanced mechanics to enhance the rate of tooth movement, and decrease the incidence of root resorption. The Insignia® system is an ideal platform for accomplishing initial alignment and leveling in a relativelyatraumatic manner. Small dimensions, round CuNiTi archwires are effective for correcting rotations and aligning marginal ridges, but may lack the buccal stiffness to level the arch. New materials, manufacturing processes and/or clinical methods are needed to gently accomplish optimal initial alignment, leveling and torque control with a single archwire. A single archwire approach eliminates the repetitive lag phases in tooth movement due to multiple archwires with progressively stiffness. In addition, the efficiency of relativelyatraumatic alignment can be improved by three currently available clinical methods: 1. differential enamel stripping of well-aligned teeth to make space to align crowded teeth, 2. retraction of teeth with OBs, placed buccal to the molars, and 3. anterior bite turbos constructed on the palatal (lingual) surfaces of anterior teeth to open the vertical dimension of occlusion (VDO), as needed.6 The objective for initial alignment and leveling is toatraumatically align each arch to receive a full-size rectangular archwire as soon as possible. A reverse engineered bracket system such as Insignia® is ideal for mechanics that minimize PDL compressive stress. The precise bracket position and torque of the Insignia® system is known that PDL compressive stress mechanics. Extra-alveolar (E-A) bone screws are ideal anchorage for moving arches as segments. Precision customized brackets, E-A bone screws and anterior bite turbos are well established.7 The current challenge is to develop materials and methods for relativelyatraumatic initial alignment in preparation for major mechanics, with innovative methods, to resolve the skeletal malocclusion with segmental treatment.

Conclusion

1. Progressive archwire therapy with the Insignia® system “begins with the end in sight” and all mechanics are a direct progression toward the desired final alignment along a straight wire. The recommended archwire sequence is summarized in Table 1. Clinicians select archwire sizes and materials according to the treatment plan. It is important to allow each archwire adequate time to provide the prescribed degree of alignment in preparation for the next archwire.

2. Insignia® is a futuristic fixed appliance, compatible with innovative 3D concepts in biomechanics. A low PDL stress approach focuses on 1. relativelyatraumaticalignment and leveling with multi-force archwires, 2. anterior bite turbos to correct the VDO, 3. E-A OBS anchorage, and 4. segmented determinate mechanics to move entire arches en masse. These methods promise to expand the scope of treatment, enhance outcomes, decrease treatment time, and control root resorption.

Acknowledgment

Thanks to Mr. Paul Head for proofreading this article.

Table 1: The recommended archwire sequence is summarized for progressive archwire therapy utilizing the Insignia® bracket system.

<table>
<thead>
<tr>
<th>Stock light round wire</th>
<th>Stock Damon CuNiTi</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.016 / 0.018 (alternative)</td>
<td>Insignia CuNiTi</td>
</tr>
<tr>
<td>0.021 x 0.025</td>
<td>Insignia TMA</td>
</tr>
<tr>
<td>0.017 x 0.025</td>
<td>Insignia CuNiTi</td>
</tr>
<tr>
<td>0.017 x 0.025 (backup)</td>
<td>Insignia TMA</td>
</tr>
</tbody>
</table>

Fig. 4: The maxillary occlusal view of the treatment sequence is shown over 13 months using Insignia® progressive archwire therapy. The archwire and months of treatment are shown at the top and bottom of each photo.
References


