Invisalign Q&A with Simon Beard, Senior Vice President and Managing Director, Align Technology EMEA

Almost 6 million people have successfully straightened their teeth using Invisalign® clear aligners, treated by Invisalign trained doctors.

Innovation in dental technology has prompted major growth in the dental health industry. Could you tell us more about how you use 3D technology to make the aligners?

As a pioneer in the industry of clear aligner orthodontics and digital dentistry, we were one of the earliest adopters of 3D printing. We see the largest 3D print manufacturer worldwide, and our priority is to ensure the highest quality of our manufacturing process.

It’s worth pointing out how Invisalign aligners differ from the market for our technology. We will continue drive innovation in the region – which is still a relatively new market for Invisalign trained doctors - general dentists and orthodontists alike – to make clear aligner therapy widely available to patients in the region.

What are your plans for growth in the region? Who do you compete with in our region?

As a pioneer in the field of digital dentistry, our focus is very much on expanding our presence in the region – which is still a relatively new market for our technology. We will continue drive innovation in the dental industry – as we have done for the past 21 years – by offering doctors and patients cutting-edge solutions to respond to their ever-changing needs. Our technology as well as commercial setup we have built in EMEA to support the Invisalign trained doctors gives us great, competitive advantage over other orthodontic solutions, available on the market.
In-office welding by Nd:YAG laser

By Prof. Carlo Fornaini & Prof. Caroline Bertrand, France

Introduction
Just after the introduction of the first laser by Maiman in 1960, there was a very fast evolution of this new technology, characterised by constant progression in techniques and applications, increasing the possibility to have smaller and cheaper devices and introducing ever-new wavelengths. Laser welding was first introduced in the jewellery industry during the 1970s and soon after successively used by dental technicians as well. The first lasers used were the carbon dioxide and Nd:YAG lasers, but the market was rapidly conquered by the second, owing to the results that could be obtained with it. 1-4

Laser welding offers a great number of advantages compared with traditional welding. Firstly, the laser device saves time in the commercial laboratory as well as in the dental office to weld orthodontic appliances and to demonstrate the technology, where it can be employed in the treatment of fistulae and wrinkles with resurfacing, in addition to the elimination, by vaporisation, of lesions such as condyloma, naevi, warts and mollusca contagiosa. 5-7 The Nd:YAG laser allows the dentist to perform surgery with complete haemostasis, utilising the affinity of this wavelength for haemoglobin and thus avoiding the use of sutures. 8 The delivery system for this laser is provided by optic fibres of different sizes, chosen according to the kind of application needed, ranging from 200 μm (endodontic) to 900 μm (whitening).

In addition to a pulse duration of microseconds, which is necessary during dental interventions, the peculiarity of the Fidelis Plus III appliance is the possibility of pulse durations of milliseconds (55 or 25), which can be utilised in phlebology, in the treatment of lesions of vascular origin, owing to the affinity of this wavelength for haemoglobin. 9

In our previous work, we demonstrated by in vitro tests on different metal samples, the good quality and high resistance of a joint welded by this device, while in this paper we demonstrate the clinical application of this technique.

Material and methods
The laser device used was, as already stated, the Fidelis Plus III, with a 900 μm fibre and a 2 mm spot handpiece (F2, Fotona), normally utilised in dermatology, or in some cases a prototype provided by Fotona itself. The parameters that we normally use for welding are:

- Wavelength: 1,064 nm
- Energy: 9.9 J
- Frequency: 1 Hz
- Spot diameter: 1 mm
- Pulse duration: 15 ms
- Fluence: 1,250 J/cm²
- Working distance: 8 mm

Clinical cases
Case 1
A 9-year-old female patient in orthodontic treatment in our office came urgently owing to damage to the appliance, and we saw that one of the Adam’s hooks had broken (Fig. 4). We welded it without filler metal (Fig. 5), and the plastic shield, although very close to the welding zone, was not damaged or modified (Fig. 6). We were able to reset the repaired appliance in the patient’s mouth after only some minutes (Fig. 6).

Case 2
An 8-year-old male patient in treatment in our office with a Schwartz removable orthodontic appliance came to us for periodic checking of the appliance, and we saw that one of the Adam’s hooks had broken (Fig. 4). We welded it without filler metal (Fig. 5), and the plastic shield, although very close to the welding zone, was not damaged or modified (Fig. 6). We were able to reset the repaired appliance in the patient’s mouth after only some minutes (Fig. 6).

Case 3
An 8-year-old male patient in treatment in our office with a Frankel removable orthodontic appliance came to us for periodic checking of the appliance, and we saw that one of the wires had broken (Fig. 7). We welded it without metal filler (Fig. 8), and the plastic shield, although very close to the welding zone, was not damaged or modified. We were able to mount the repaired appliance in the patient’s mouth after only some minutes.
Orthodontic treatment not associated with overall happiness, study finds

By DTI

ADELAIDE, Australia: Research undertaken at the University of Adelaide has examined whether an orthodontic treatment has an impact on psychosocial outcomes. The study concluded that, contrary to popular belief, such therapy does not result in better psychosocial functioning later in life.

The study, the first of its type in Australia and the second in the world, investigated whether having undergone treatment with fixed orthodontic appliances led to a greater level of happiness or psychosocial outcomes later in life. The longitudinal study followed 484 13-year-olds from Adelaide who had previously participated in an oral epidemiology study between 1988 and 1999. By the time the participants turned 30 in 2003 and 2006, more than a third had received an orthodontic treatment.

"There was a pattern of higher psychosocial scores in people who did not have orthodontic treatment, meaning people who hadn’t had braces fitted were significantly more optimistic than the ones that did have braces," said study co-author Dr Esma Dolganci, lecturer in orthodontics at the university’s School of Dentistry. "Those who didn’t have braces had varying levels of crooked teeth, just like those who had braces, treatment, ranging from mild through to very severe."

The study looked at four psychosocial aspects. First, it examined how well the participants felt they coped with new or difficult situations and associated setbacks. Then, the researchers checked how confident they felt in taking care of their own health. The researchers also assessed the support the participants believed they received from their personal network and, finally, their level of optimism.

"These indicators were chosen because they are important for psychosocial functioning and are relevant to health behaviours and health outcomes, since the core research question was the impact of braces treatment on patients’ self-confidence and happiness in later life,” Dolganci noted. "A lot of people are convinced that if they have braces, they will feel more positive about themselves and do well, psychosocially, in later life. This study confirmed that other factors play a role in predicting psychosocial functioning as adults—braces as a youngster was not one of them.”

The study, titled “The long-term influence of orthodontic treatment on adult psychosocial outcomes: An Australian cohort study,” was published online on 27 May 2019 in Orthodontics and Craniofacial Research, ahead of inclusion in an issue.
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