“Multidisciplinary aspects of treatment are extremely important”

An interview with congress presenter Dr Robert Boyd, USA, on treatment with Invisalign

Dr Robert Boyd is an orthodontic specialist from San Francisco and will be conducting the IDEM post congress workshop “Improving the predictability of quality treatment results with Invisalign” tomorrow at the Suntec Singapore International Convention Center. Today international had the opportunity to speak with Dr Boyd about the appliance and in which ways it is superior compared to traditional braces.

Dr Robert Boyd: I would say that the evolution of Invisalign has been a continuous process since its introduction in 1998–99. The inventors of Invisalign, Align Technology, became a publicly traded company in 2001–02 with an experienced new CEO named Tom Prescott. Under his direction, Invisalign opened up many new possibilities for expansion and set a clear direction for the company in emphasizing product development.

Another big positive change came with the hiring of a new Director of Research named John Morton in 2006, when Invisalign started on a new research direction based on product improvement with a clear emphasis on engineering principles. He was instrumental in creating many finite element tooth movement models and other tools which could be used to make Invisalign more predictable for tooth movement. This led to an acceleration of new and more efficient and effective movements of teeth with aligners.

Align Technology continues to modify the latest versions of Invisalign with special emphasis on biomechanics and software based on the science of accurately predicting orthodontic movement of teeth movement.

A recent study from the University of Rome Tor Vergata has raised doubts about the effectiveness of Invisalign compared to fixed appliances. Would you like to comment on that and are there limits to the device?

If you look at the whole body of literature, many studies were done on Invisalign before 2005. Like all scientific literature, testing of products often involve a time lapse and as a result many of these studies have been done on previously used appliance designs and not the most current design. A recent German study published in the German Orthodontic Journal, April 2011, showed favourable findings on the Invisalign product by studying more currently developed appliance designs explaining how Invisalign has been modified to provide optimized extrusions.

Part of the limits to Invisalign is the overall experience that orthodontists have with the appliance. Many dentists may not have current training or experience to handle the technique, resulting in limits to the device.
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Where do you see further potential?
Invisalign was originally meant for adults who wanted to straighten their teeth without the look of traditional metal braces, commonly worn by children and teenagers. However, with the increasing social consciousness from young people today, I believe that the new potential market will be with teenagers.

As Invisalign continues to evolve, improve and develop technologically, one potential problem could be in the area of treating difficult patients who may not want to cooperate to get the best treatment. One recent innovation that has resulted in better cooperation from patients includes the compliance indicator—a little blue dot on the aligner where the back teeth are, which gets fainter and fainter with more wear. The compliance indicator provides dentists with a more objective way of making sure their patients cooperate.

How important are the multidisciplinary aspects of treatment and can you name an example?
I think multidisciplinary aspects of treatment are extremely important. I am also a periodontist and my specific area of interest has long been patients who have problems with their gums but who also want to get their teeth aligned. Another example is when braces/aligners are not able to solve the alignment problem totally and when oral surgeons would need to step in due to certain jaw line issues.

Today’s education system needs to teach dentists how to coordinate, as well as deal with other specialists. I think it is healthy for specialists from the different disciplines to meet and discuss complex treatments so as to better benefit the patient. A great deal of educational materials involving multidisciplinary treatment is available on Align Technology’s AlignTech Institute.

Treatment planning in orthodontics is increasingly performed with 3-D imaging hardware and software. What can these new devices add to the treatment with Invisalign?
Invisalign was the first software–hardware company to use 3-D imaging on a day to day basis for orthodontic treatment. The many 3-D applications of Invisalign can be a very useful as a teaching tool to make Invisalign simpler to understand for both patients and students. Continuing education is very important to Align Technology so they have given doctors more information about Invisalign with their AlignTech Institute, which helps provide online learning for over 200 units of free continuing education to dentists.

Invisalign now employs 3-D surface imaging with a device called the itero which is able to make rapid scans of a person’s teeth and then send them immediately to Align Technology to create the treatment plans and build the aligners. This bypasses the usual impression taking and mailing in the impressions to get started and so patients can now receive their aligners and begin treatment within a week’s time from their first visit.

Are there any cases of treatment with Invisalign that have impressed you personally?
I think one way that Invisalign is superior compared to traditional braces is that Invisalign works particularly well on treating open bites as patients with this condition are more likely to suffer from relapse in the future using the traditional braces method. Most other applications with Invisalign approach the same standard of treatment time and quality as conventional braces but may occasionally take a few months longer because of the delays sometimes encountered when ordering new aligners when a change in treatment goals is indicated.

Thank you very much for this interview.