

# DENTAL TRIBUNE

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"The correct choice of an animal model is vital"

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## Expanding potential: The iTero Element 5D Plus lands in the Middle East

Interview with Angelo Maura, Align Technology

By Dental Tribune MEA

Over 100 dental professionals attended the Middle East launch of Align Technology's latest innovation, the iTero Element Plus series, held on the evenings of 18 and 19 May at the Theatre of Digital Art in Dubai in the UAE. The interactive events featured presentations by two leading international digital dentistry experts, who described the role of end-to-end digital treatment in improving both prac-

tice efficiency and patient experience. Dr Ingo Baresel, a German dentist and president of the Deutschen Gesellschaft für digitale orale Abformung (German association for digital oral impressions), discussed the benefits of digitisation with iTero scanners for general practitioners on the first evening. On the second evening, the live webinar was hosted by Invisalign

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iTero Element Plus demonstration during the launch event in Dubai, UAE (Image: Align Technology)

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speaker Dr David Couchat, a French orthodontist and clinical speaker, who discussed the benefits to orthodontists of digitisation with iTero intra-oral scanners.

Further launch events were held across the region, attracting more than 80 attendees at the Ritz-Carlton hotel in Riyadh in Saudi Arabia on 24 and 25 May and over 50 attendees at both the Four Seasons hotels in Doha in Qatar and in Manama in Bahrain on 30 and 31 May. During the launch in Dubai, Dental Tribune Middle East & Africa spoke with Angelo Maura, general manager for the Middle East region at Align Technology, on the iTero Element 5D Plus intra-oral scanner, the advantages of this system for dentists and patients, and the company's outlook for the region.

**What excited you about yesterday's and today's event, and what has the feedback been from your current and prospective customers on the new scanner that you have just launched?**

The feedback has been incredibly positive, from both customers who already own and use the Element 2 scanner, our previous model, and those who do not own a scanner and are not employing a digital workflow.

Our choice of venue, the Theatre of Digital Art, and our emphasis on the digital experience have really resonated with attendees. The vast majority of dental and general healthcare organisations in the UAE want to digitalise in the next few years, so this is something that is creating a sense of urgency. We've passed the phase from early adopters to early majority. People are understanding that digital is not the future but the present, and it is getting easier and easier to get them to embrace it because it's a matter of future-proofing, and I believe that it is going to get easier and easier the more we keep showing the benefits of the technology.

**What is so unique about the iTero Element 5D Plus, which is newly released on the Middle Eastern market? Obviously, you have quite a lot of experience from other markets. What has the feedback from those users been, and based on that, what are you expecting regarding dentists in the region?**

There are benefits that come from iTero's ongoing evolution from intra-oral scanner to digital platform. It is almost like a staff member in the practice, helping to record, visualise, communicate with the patient and execute the treatment. These benefits of course apply to any generation of iTero, but we do see more and more of that as we evolve our technology.

This advancement comes from how much more powerful it is than before: it is faster, not only from a scanning perspective but also from a processing perspective. As demonstrated by Dr Baresel yesterday, when communicating with labs, sometimes it's a matter of seconds or minutes from taking the scan to it reaching the lab. It's faster in processing. We've harnessed artificial intelligence (AI) and cloud storage to speed up the process. Of



Angelo Maura, General Manager Middle East at Align Technology (Image: Align Technology)

course, there is a design factor as well. The footprint is smaller, and it's definitely more sleek, more elegant, so there is also an aesthetic factor. The big advancement, the reason we call it 5D, is the NIRI (near-infrared imaging) technology, which allows the visualisation of caries in real time, while scanning, and especially, like Dr Couchat said, capturing interproximal caries that is sometimes difficult to capture via other means. This has been found to be more effective than bitewings. This technology comes together in the same scan. This is the only scanner on the market that yields a 3D scan, intra-oral colour, intra-oral photos and NIRI in one scan, all in less than 60 seconds in the hands of a trained dentist. There has also been a major advancement in the simulation tool, the Invisalign Outcome Simulator Pro, which has just been launched, including the visualisation interface, and that is yet another step towards making iTero an extremely powerful visualisation and communication tool beyond being an intra-oral scanner.

**Could you elaborate more on the benefits of this product for the patient?**

The benefit for the patient is that he or she will be able see what is wrong in the mouth and what improvements he or she needs to make to his or her oral health situation, rather than the dentist just telling him or her. It's one thing having the dentist tell the patient that he or she has a cavity and what needs to be done, but it's another seeing it on the screen. In a way—this is something I heard from a key opinion leader in the US—the clinician is delegating the giving of the bad news to the machine, so it's the machine that shows exactly what is going on. It shows this in a visual and easy-to-understand way, communicating to the patient how to improve his or her oral health. I think that the biggest advancement is moving from scanning to visualising and moving from a single tool to a platform, and it allows the provision of information and education, especially, to the patient in a very simple, visual and easy-to-understand way. This promotes higher patient acceptance of treatment, better understanding of treatment and better preventive care because of the NIRI technology, thereby improving the oral health of patients.

**What does this launch mean for the region? What do you expect from this launch and over the next few months and years?**

What we expect, apart from elevating the level of technological advancements available in the region and apart from having another tool in our portfolio, is that this is something that is going to help dentists completely digitalise their practices. With a simple intra-oral scanner, the dentist starts by simply digitising the impression, moves towards digitising the treatment plan and moves towards digitising the preventive analysis and diagnosis, so we are evolving our overall digital platform to serve dental practices in the best way possible and to completely absorb the internal and external workflow. This is something that is going to be helping dentists to do better dentistry and more dentistry, to give better quality of care and in future-proofing.

The future is growing exponentially, not linearly, and this is a product that will help dentists stay ahead of the curve. As we said at the beginning of Dr Couchat's presentation, this is going to allow dentists to take control of the future, rather than submit to it.

**Can you tell us more about the support to customers in the region?**

When it comes to bringing such a premium technology to a market, it's important that we not only provide the product technological advancements but also address the kind of support and community that we wish to create around the product. As you mentioned, we've been investing heavily in the product. To give you a frame of reference, over the last few years, we have invested more than US\$250 million a year in research and development. At the same time, we've been expanding the team aggressively. We are creating an entirely new team for restorative technology to support dentists in their practices. In our team, we started integrating what we call practice integration managers, who are experts both from a technical perspective and from a workflow perspective, who will be going to dentists' practices and supporting them in integrating this new technology. Something that we are doing and had started doing before is providing an approach to service from a complete peace of mind perspective. We have a service package that comes with the scanner and includes the warrantee, re-

pair and technological updates. It's basically a one-stop shop that allows the dentist to have complete piece of mind and be sure that he or she has a piece of equipment that is always on and the certainty of support from the Align team and of having the technology always up to date.

**Align Technology recently entered Oman. Can you tell us more about this and your future regional expansion?**

We have officially introduced the Invisalign system in Oman, and we will soon be introducing the iTero intra-oral system there too. For us, this is an extremely important step in order to expand our footprint in the region. It reinforces our presence in the GCC [Gulf Cooperation Council] countries and our service to the Middle East. It allows us to capture the amazing potential that we have in Omani dentists and patients to expand awareness of the brand and to make sure we can offer our service to more and more dentists in order for them to treat more patients with best-in-class technology.

Of course, we will continue working towards expanding our presence and access geographically, and we will be making sure to hire and have a team offering proper support on the ground to sustain the growth of the dentists who will be coming along with us on this journey.

Something important to mention is that, like other Middle Eastern countries, Oman is future-oriented, having a future vision of technology and innovation, and we want to make sure that we are there to see it realise and support it, and for that reason, we are extremely pleased to have made this step this quarter.

**In your view as the general manager of Align in this important region for the company, what is the future for Align here in five or ten years?**

This region is the cradle of the future. What we are seeing happening in the Middle East right now, in all the council countries and beyond, is incredible attention to and investment in digitalisation, innovation, AI, cloud computing and machine learning—in the future in general—and in all sectors of life. Embracing technology is in the very fabric of the Middle East right now. This is the place to be for evolving and shaping the future of dentistry. We're going to

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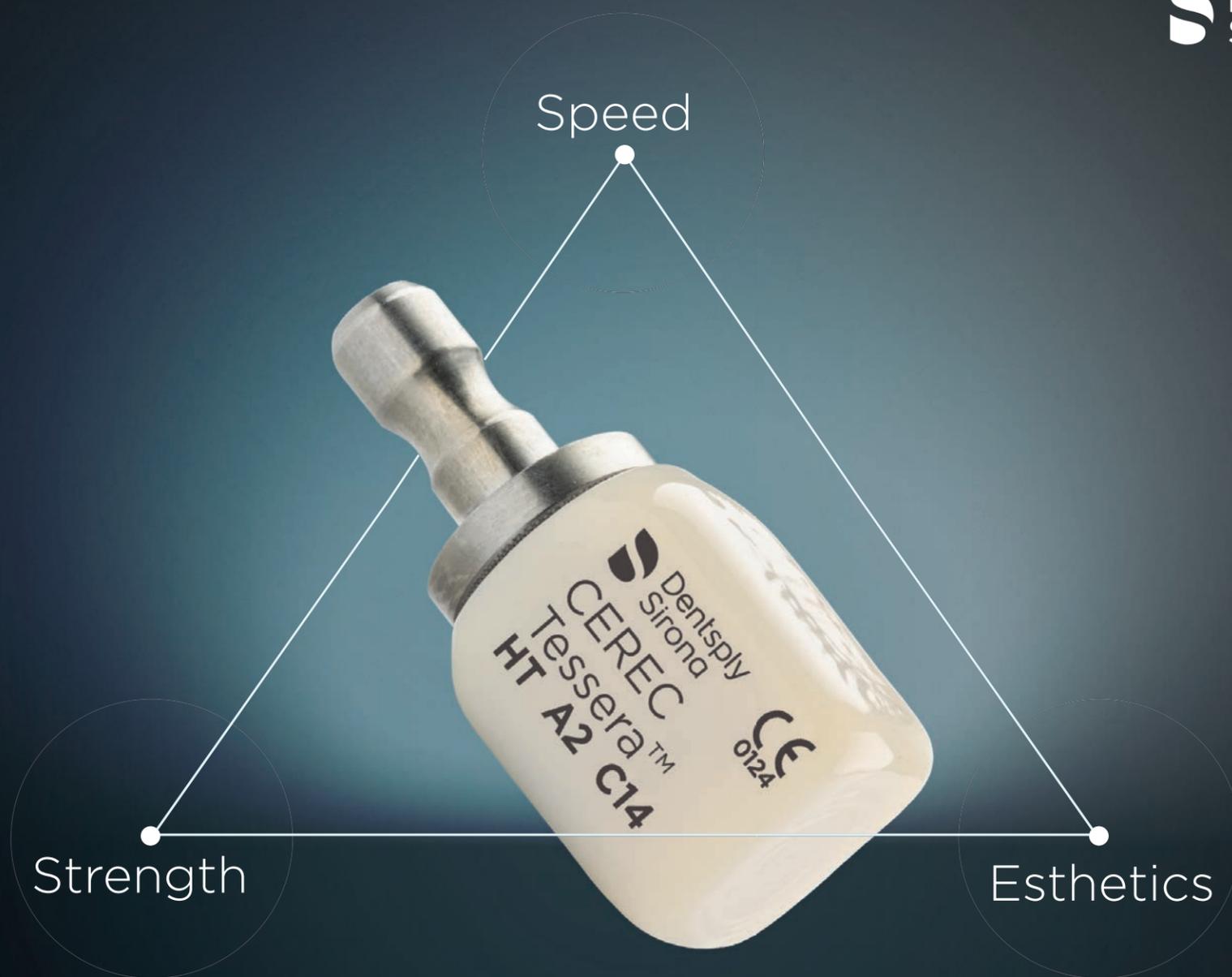
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keep investing in this, supporting our dentists, expanding the team, our portfolio and support, and making sure that Align is a close partner of the dental practice. We want to make sure that Align will keep evolving with the times and moving at the pace of technology and innovation so that we can remain at the forefront of dental technology and digital dentistry and that we can help dentists in future-proofing their practices.



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# Part 2: Sustainable dentistry in 500 words or more



In this six-part series, Dr Sanjay Haryana will write about different aspects of sustainability in dentistry in short. (Image: geralt/Pixabay)

By Dr Sanjay Haryana

**SINGAPORE:** Why should dental professionals strive towards sustainable dentistry? Firstly, it is the right thing to do ethically; secondly, it is a great marketing-tool; and finally, it creates an attractive workplace for new colleagues, since research indicates that the younger generation values sustainable workplaces more highly than monetary compensation. Before taking steps towards creating a green dental practice and practising green dentistry, the practitioner should understand that sustainability minimises the pitfalls and simplifies the process. This article will give a brief overview of sustainable de-

velopment, focusing on Agenda 2030 and the 17 Sustainable Development Goals (SDGs) of the United Nations (UN).

Modern sustainable development has its origins in 1972, and it has evolved into sophisticated processes and workflows. It is still often associated with the combating of global warming and irresponsible waste management, and rightly so, but the subject is complicated owing to the multiple factors that are interconnected.

Agenda 2030 was accepted by the UN in 2015 and has the aim “to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity”. It can be described by using the five Ps:

people, planet, prosperity, peace and partnership. Protect people from poverty and hunger; take steps to protect our planet from degradation and global warming; make sure that we can prosper in symbiosis with our environment; establish peace for mankind; and be able to live without fear and violence. This can only be achieved by the five Ps working together—creating local and global partnerships. Sustainable development is dependent on progress within all the five Ps, since they are all connected. Without partnership, there is no peace; without peace, there is no prosperity; and without a planet, there is no future.

The five Ps are an overview of Agenda 2030, whereas the UN SDGs are a breakdown of Agenda 2030, which is based on the eight millennium development goals (2000-2015) and further divided by the three pillars of sustainability—economic, social, and environmental—into 17 tangible goals and 169 unique actions. These action points provide further guidance for an individual who wants to practise sustainability using the SDGs or for an organisation which has the same aim.

Even though the SDGs provide a structured and focused course of action with clear indicators, it can still be a daunting task to implement them in the day-to-day prac-

tice. An alternate way to frame the workflow of the SDGs is the wedding-cake model created by Prof. Johan Rockström and Pavan Sukhdev. This model was aimed at the food industry, and they layer the SDGs into four layers like a wedding cake, using environment (biosphere), society and economy for the first three layers, and finally, adding SDG 17, called “partnerships for the goals”, on top.

The message, in very simple terms, is that we need to attend to all the layers in the wedding cake to succeed, but ultimately, without the environment (biosphere)—our planet—the other layers become redundant.

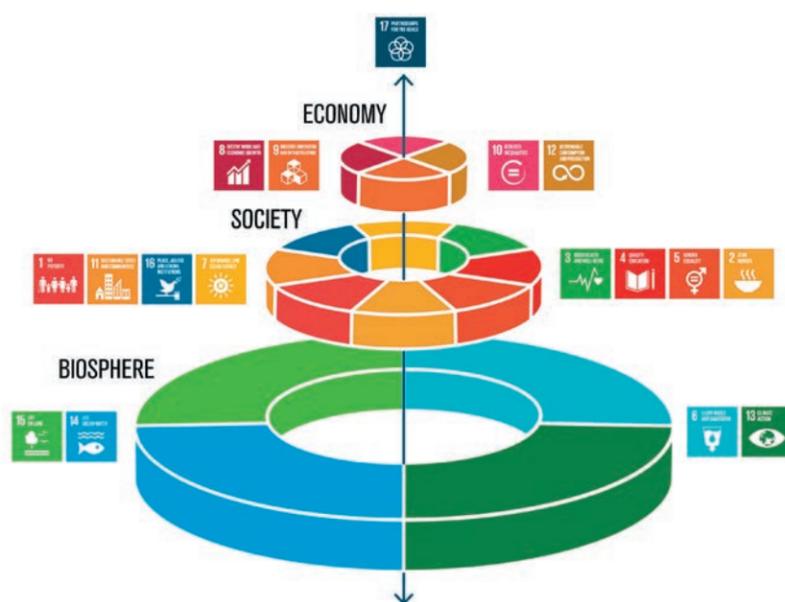
As dental professionals, we can work in all layers to create a successful sustainable practice. Examples of this are:

- **Environment:** SDG 13 relates to “climate action”. Here, Target 13.2 is to lower greenhouse gas emissions, which is closely connected to our day-to-day work. We will discuss this in detail later in the series.
- **Society:** SDG 3 relates to “good health and well-being”. Here, Target 3.8 is to battle non-communicable diseases, which in dental medicine, relates primarily to caries and periodontal disease.
- **Economy:** SDG 12 relates to “responsible consumption and production”. Here, Target 12.5 is to focus on procurement and waste management such as reduction, reuse and recycling.

These targets are only examples, and it is up to professionals and practices to decide where they can make the greatest impact.

Additionally, we can support organisations that work directly with other actions, like that of providing safe and affordable water for all. This support is an example of SDG 17 “partnerships for the goals”, which is the last layer of the wedding-cake. This is also where dental professionals can make a major impact globally by partnering with sustainable suppliers. In Part 3, sustainable procurement will be discussed in greater detail.

Editorial note: In this six-part series, Dr Sanjay Haryana will give an overview of different aspects of sustainability in dentistry.



Prof. Johan Rockström and Pavan Sukhdev present new way of viewing the Sustainable Development Goals. (Image: Azote Images for Stockholm Resilience Centre/Stockholm University)

**About the author:**

Dr Sanjay Haryana is an Education and Odontology Specialist at TePe Oral Hygiene Products.

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Photographs courtesy of Dr. Anand Narvekar  
Full article on Dental Tribune Middle East & Africa Edition Issue Jan-Feb 2019 | No.1, Vol.9  
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# “Colleagues challenged me to predict where caries might occur in the mouth”

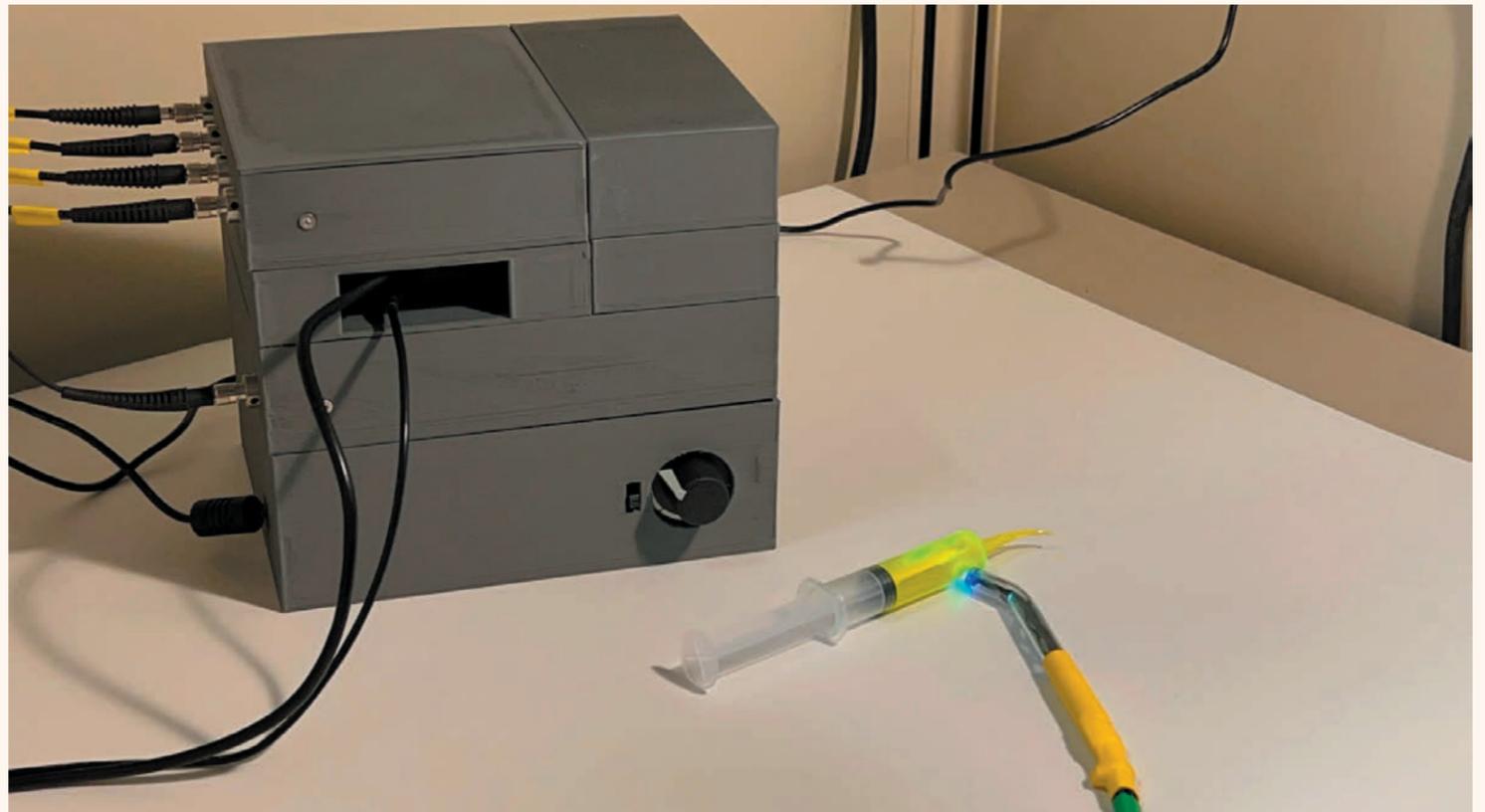
By Anisha Hall Hoppe, Dental Tribune International

A new prototype device paves the way for pinpointing exactly where acidity in oral biofilm is increasing and thus where caries is most likely to develop. The optical pH monitor, called O-pH, has provided impressive results in monitoring oral biofilm pH levels and has even influenced the career path of one of its developers. Dental Tribune International (DTI) was able to speak with lead researchers Dr Eric Seibel, research professor of mechanical engineering with department affiliations in electrical and computer engineering, bioengineering and oral health sciences at the University of Washington, and doctoral student Manuja Sharma about the development of the O-pH device, its potential and the motivation behind the project.

**Ms Sharma, DTI previously reported on the new prototype optical pH sensor O-pH. How has developing a dental device as an electrical and computer engineering PhD student influenced your studies and your targeted career path?**

**Sharma:** On a personal level, my research has motivated me to work in health diagnostics in order to design and develop sensors to investigate the signals and parameters of the human body that are, as yet, unexplored. In the development of O-pH, I had an opportunity to interact with dentists, chemists and other engineers and understand what it takes to build a prototype and deliver it to the clinic. I am sure that these skills and experiences will be extremely valuable in the course of my future career.

**Dr Seibel, the study mentioned that previous attempts at measuring dental biofilm pH utilised electrodes or pH strips. How did your team come up with the revolutionary concept of using photodiodes?**



The prototype optical pH monitor could be a precursor to at-home devices to allow patients to monitor acidification on their teeth. (Image: Manuja Sharma, University of Washington)

**Dr Seibel:** My dental colleagues challenged me to predict where caries might occur in the mouth, which led me to measure pH, not at the outside of the oral biofilm, bathed by saliva, as done by pH electrodes or paper pressed up against the biofilm, but throughout the biofilm. This requires a pH-sensitive dye that permeates only the extracellular matrix in order to obtain an accurate reading of the pH that surrounds enamel.

**Sharma:** The low-power blue light makes the dye inside the syringe fluoresce, and then this dye on an artificial tooth set mimics how the device works in the mouth.

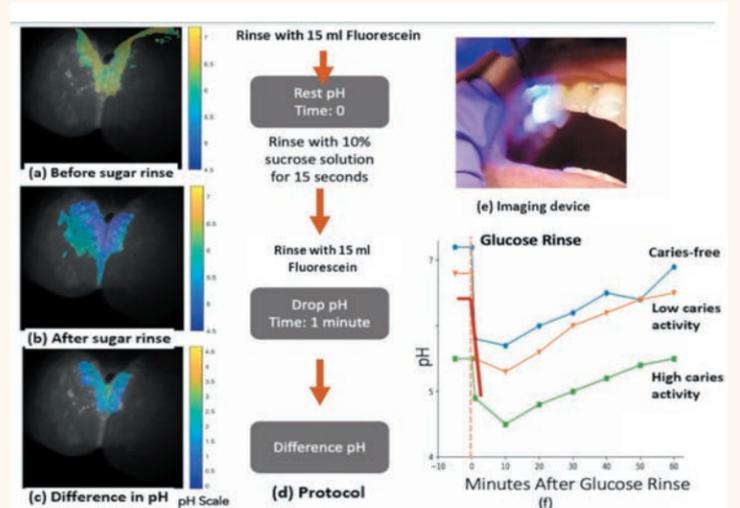
**During your research with O-pH, did you identify any other opportunities for further research other**

**than that of investigating different levels of sucrose concentration?**

**Dr Seibel:** We have been pursuing a dental app that would help guide a teenager undergoing orthodontic treatment, or his or her parent, in applying prescription-level fluoride varnish at home for the locations that are identified as highest risk for caries by O-pH. This concept was tested in surveys of paediatric dentists in Washington State and presented in a poster of which Ms Sharma was a co-author.

**What is the next step for this product, and what would it take to make it widely available for use by practitioners?**

**Dr Seibel:** We hope to work with dental device manufacturers to conduct clinical studies with varia-



The O-pH device utilises a low-power blue light and a special dye to cause oral biofilm to fluoresce in areas with higher levels of acidification. (Image: Manuja Sharma, University of Washington)

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tions of the O-pH device, such as the image-based device—multi-modal scanning fibre endoscope—used in the case study described in our recently published paper. An imaging system that maps oral biofilm pH should be able to achieve a more robust measurement over time. For example, one set of panoramic images of the pH of the biofilm covering enamel surfaces can be compared with the next set of panoramic images obtained six months later. Over time, this measurement of the biofilm pH before the biofilm is removed at the dental clinic can become a quantitative and spatial enamel health monitoring system.

Editorial note: Both researchers said they could envision a smaller version of their O-pH device being used at home

to help dental patients see biofilm and monitor acidification on their teeth, perhaps in conjunction with such an app as Dr Seibel previously mentioned.

The poster Manuja Sharma presented for the 2022 University of Washington Electrical and Computer Engineering Research Showcase can be found here, and further information on the presentation can be found here.

The original published study referenced by Dr Seibel, titled “O-pH: Optical pH monitor to measure oral biofilm acidity and assist in enamel health monitoring”, was published online on 23 February 2022 in IEEE Transactions on Biomedical Engineering, ahead of inclusion in an issue.

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# Mectron & ITI – a long-term relationship

By Mectron S.P.A.

Mectron s.p.a., inventor and producer of PIEZOSURGERY, the revolutionizing piezoelectric bone surgery unit, and the International Team for Implantology (ITI), a lead-

ing academic organization dedicated to the promotion of evidence-based education and research in the field of implant dentistry, announced that they have signed a long-term sponsorship agreement.

As the first sponsorship partner in a new initiative launched by the ITI to establish longer-term relationships with a small number of companies from the industry, Mectron will be working more closely with the ITI for an initial period of

three years. The agreement encompasses primarily ITI congresses and symposia as well as the contribution of educational material for the ITI community in its area of expertise. Mectron is now one of a select



Charlotte Stilwell, ITI President

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group of companies known as industry partners of the ITI.

"This global ITI initiative is based on a modular sponsorship concept that allows us to meet the individual needs of our sponsors," said Charlotte Stilwell, ITI President. "It represents a mutually beneficial, longer-term commitment made by carefully selected companies that share similar educational and scientific, evidence-based principles as the ITI. We are very happy to welcome Mectron on board."

#### About the ITI

The International Team for Implantology (ITI) is an academic association that unites professionals around the world from every field of implant dentistry and related disciplines. The ITI's purpose is to engage and inspire the global dental profession to strive for excellence in implant dentistry for the benefit of the patient. ITI Fellows and Members regularly share their knowledge and expertise from research and clinical practice at meetings, courses and congresses with the objective of continuously improving treatment methods and outcomes to the benefit of their patients.

In more than 40 years, the ITI has built a reputation for scientific rigor combined with concern for the welfare of patients. The organization focuses on the development of well-documented treatment guidelines backed by extensive clinical testing and the compilation of long-term results. The ITI funds research as well as Scholarships for young clinicians and offers a wealth of educational activities, courses and events both on and offline to ensure a life-long learning journey for all professionals in implant dentistry. The organization also publishes reference books such as the ITI Treatment Guide series and operates the ITI Academy, a peer-reviewed, evidence-based e-learning platform with a unique user-centric approach. [www.iti.org](http://www.iti.org)

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# Treatment of a deep carious lesion of second lower premolar with 3M Filtek One Bulk Fill Restorative

By Dr. Filippo Dini, Italy

## About the case

Male patient; 47 years old. Patient reported pain when drinking cold beverages. The X-ray showed the extension of caries close to pulp. Endodontic treatment was required.

## Challenge

The deep cervical margin and the preservation of tissue for the post-endo restoration posed challenges in this case. Excellent adaptation between the material and cavity walls is critical.

## The 3M difference

In deep and tight cavities, incremental layering can be a timely

challenge and lead to poor marginal adaptation. With its easy handling and excellent adaptation, 3M Filtek One Bulk Fill Restorative enables one-step placement up to 5 mm, without compromising the aesthetics of posterior restorations.

Editorial note  
Refer to Instructions for Use (IFU) for complete product information.

**Dr. Dini Filippo**  
Studio Dentistico  
Via Antonio Pacinotti, 110  
55049 Viareggio LU  
Italy



**Fig. 1:** Initial Situation: Second lower right premolar with a deep carious lesion restoration that required endodontic treatment. Image is showing the final preparation after removing the temporary filling.



**Fig. 2:** Placement and adaptation of the sectional matrix.



**Fig. 3:** Enamel is etched for 15 seconds using 3M Scotchbond Universal Etchant for a selective etch approach, followed by rinsing and drying.



**Fig. 4:** 3M Scotchbond Universal Adhesive is applied and scrubbed into the surface for 20 seconds.



**Fig. 5:** After air drying for approximately 5 seconds, the adhesive is light cured for 10 seconds with 3M Elipar DeepCure-S LED Curing Light.



**Fig. 6:** 3M Filtek One Bulk Fill Restorative, in shade A3, is directly placed into the cavity in a single increment and then cured according to the Instructions for Use.



**Fig. 7:** Following finishing, to achieve the final polish of the restoration, the 3M Sof-Lex Pre-Polishing Spiral is used, as a first step, on a moist surface.



**Fig. 8:** A final high-gloss polish is created using the 3M Sof-Lex Diamond Polishing Spiral on a moist surface.



**Fig. 9:** Final restoration is very natural-looking and aesthetic.