INTERVIEW

Michael Norton: 'Dental implants have defined my whole career'

Interview by Ruth Doherty



Why dental implants?

Since I was very little I had a complete fascination with cutting things up and blood: so I was either going to be an axe-murderer or a surgeon! There's no history of medicine or surgery in my family so I've no idea where it came from. I used to dissect hearts and frogs with my neighbour who was a dentist and his infectious love of dentistry rubbed off on me. I realised that dentistry was basically all about cutting but even cutting a cavity wasn't enough for me, so oral surgery became the obvious next step after qualification.

My real turn of fortune happened when I was finishing my senior house officer position at St Thomas' where I had the great fortune to train under two phenomenal surgeons: Mike Simpson (senior registrar at that time) and Derek Henderson (consultant). both those guys was a real education.

Mike had been on a sabbatical in the USA (this was around 1989) and while there he had been exposed to this new concept of 'implants'. It blew him away. At the time he returned I was thinking about going back to medical school to pursue the maxfac route, but Mike said: 'What I have seen in the US is absolutely the future, don't do maxillofacial, find a way to do dental implants instead'. And I owe him everything because of that. Not only was that very early on in my career but also at the advent of implant dentistry, so my **Michael Norton**, implant surgeon, became the 31st President of the Academy of Osseointegration (AO) in 2017, the first British dentist to hold that position and indeed the first ever non-American to do so. In March 2018, Michael's Presidential AO meeting was held in Los Angeles, California and the conference attracted over 2,500 delegates from around the world. Michael graduated from the University of Wales College of Medicine Dental School in 1988, and went on to specialise in oral surgery, researching, teaching and practising specifically in the field of implants for over 25 years. Michael's implant practice is based in Harley Street, London.

career and dental implant development ran side by side.

I found myself a position at the Royal London Hospital as a research student where they were doing a Brånemark implant trial. Shortly after that, Astra, a Swedish Pharmaceutical company expressed an interest for me to work with them to help them develop, finalise and ultimately launch their implant. Between 1991 and 1995 I went into the industry and that's where I got all my implant experience and training – where I and also animal studies to look at the response to different surface technologies. At Astra we introduced the first ever micro-textured surface onto the market (a surface called TiOblast) and I was part of the original published studies for that surface technology.

That non-clinical research and development made me the best implant surgeon I could be. If you're a good clinician with good hands you can learn the techniques to carry out implant surgery, but too many dentists today screw in implants without having a basic

'Too many dentists today place implants without having a basic understanding of why they work the way they do...'

learnt everything. There wasn't a lot to learn at that stage because it was all so new. We launched the Astra Tech implant and I've been an international consultant for that implant system ever since.

So that's how I got into dental implants and it's defined my whole career. I honestly consider myself the luckiest person in the world.

What research did you carry out in industry?

Initially it was all lab-based research – looking at the mechanics and design of the implant,

understanding of why they work the way they do. Doing implant dentistry is as much about the engineering and biomechanics as it is about the biology and dentistry, but that side of implant dentistry is often ignored.

What will help to further dentists' understanding of how implants work?

The big argument against teaching undergrads implant dentistry is the cost , who is going to fund it? In the US patients who get dental implants at a dental hospital have to make a significant contribution. It's still cheaper

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than having it in private practice but that way students get experience, but it's still mostly at the postgraduate level.

However, that's not to say that there can't be didactic teaching of basic fundamental implant science at undergraduate level: understanding how implants work, why they are designed the way they are, the physiology of osseointegration, the biomechanics, the pathology. There's lots you can teach an undergraduate that, frankly, they need to know before they ever contemplate putting an implant in. I would argue that absolutely needs to become a formal part of the curriculum.

Peri-implantitis – what are your thoughts?

There are two very different schools of thought about peri-implantitis and if you go to any of the major congresses there is clearly a lot of debate around this issue. The debate can be these must all be measured against a baseline of health. Progression is the key.

What are do you find most challenging about your work?

The most challenging thing by far is meeting patient expectations. Unfortunately, we live in a world of defensive dentistry. This means that if you are doing the most challenging treatments, which I guess by definition implant surgery is, it makes for a very stressful life.

I am staggered and amazed at how many general dentists would want to do this as part of a general dental environment because it's not well suited. Some do it brilliantly of course but too many don't because it simply doesn't fit into a busy general practice. To do it right you need time and you need to spend money, it cannot be done on the cheap. You need to commit so much time to do it well

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summarised as one group (predominantly periodontists) who see peri-implantitis as a bacterially-mediated disease, causing bone loss by the same process as with periodontal disease.

And the other group who see the bone loss caused by other issues, such as poor surgery, excess cement or poor prosthetics, and then the resulting bone loss gives rise to a secondary, opportunistic infection that leads to peri-implantitis. The end result is the same – bone loss, pus, bleeding on probing etc.

The other thing that is under big debate at the moment is the prevalence of the disease and the incidence. To be clear about the difference – prevalence is how many people have it right now and the incidence is how many one would expect to get it based on epidemiological studies. Both of these can only be answered if there is global consensus on the standard upon which you measure the presence of peri-implantitis. Is it by pocket depth? Is it bleeding on probing? Is it bone loss? And then at what depths?

In my opinion, bleeding on probing and pocket depth are not markers themselves, what is important is a change in pocket depth over time or going from minimal bleeding on probing to profuse bleeding on probing. Bone loss and purulence are clearly markers but and you need to commit to the technology, eg CBCT scans etc.

I also believe clinicians should be doing bespoke CADCAM implant dentistry and not using stock components and that is expensive. Unfortunately, as the defence organisations will attest, far too many of our colleagues are falling foul by using inferior products or not using adequate technology for planning.

If you retired tomorrow what would you do?

Everyone tells me I will never retire because I love my job so much, but I am actually someone who could happily retire.

I would fill my time by studying cosmology and astronomy because that's my hobby. I'm totally and utterly obsessed by space. I still spend the occasional night out staring through my telescope until I get too tired or the weather gets too cold!

I would also continue to travel – seeing the world is the best education there is.

You have recently been the first non-American to be President of the Academy of Osseointegration in its 36-year history. What did this involve?

The funny thing about the presidency of the Academy of Osseointegration (AO) is that it

takes 11 years from first becoming a director to becoming president, and then you are only president for a year! I would argue that the work involved is in the 11 years building up to being president. Most of the time during your year as president you are planning for your meeting which is at the end of your year so a great deal of time was taken up with that event.

Some years ago, I instigated a global programme for the AO (this was under the auspices of previous presidents but I was chairman of that taskforce). I have seen it through ever since so that's had me globetrotting above and beyond my usual travel for lecturing. In the last three years the amount of travelling I did was ridiculous!

If someone had tapped me on the shoulder when I was staring at the results board after taking my finals, and said 'you just got yourself a passport to see the whole world' – I would've said they were crazy.

I thought I was going to be in a small room, with a window if I was lucky, and that I was going to be in that same room for the next 50 years. Instead I've flown nearly everywhere in the world and I have an incredible network of colleagues internationally who I value tremendously. I thoroughly enjoy it and feel incredibly fortunate.

Why do you feel your AO presidency is so important for UK implant dentistry?

I am saddened by the fact that when we look to the mainstream implant literature there is really no contribution of any significance coming from many of the dental institutes in the UK. Instead it is peppered with contributions from Sweden, the USA but also from Italy and Germany, Brazil, Israel, Switzerland and many more.

Dentistry is a British phenomenon and you only have to go to the BDA and open a Victorian issue of the *BDJ* or take a trip to the BDA museum to understand the important contribution this country has made to dentistry. It upsets me that we didn't embrace dental implants earlier like other countries and so I have seen myself as a flag bearer for British implant dentistry.

Of course my presidency wasn't just about representing Britain – it was just as important being a 'non-American'. It was vital for a non-American to break through to increase the international character of the AO.

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What are you most proud of achieving in the course of your tenure in this role?

I'm very proud to have been the first non-American President of the Academy of Osseointegration, it is very special but also taking AO global. The beautiful thing about the AO Board now is that it is very much a team, with clear thinking in the same direction. It has been a fight at times but I think the Board today is entirely committed to AO being be a global organisation. So what was a 'once-a-year-meeting-in-America' organisation is now an organisation that has run multiple meetings over five continents in 15 different countries. I'm proud of my contribution to this globalisation. know when it's appropriate for a tooth to be saved, and when it's wasting the patient's money to try and save it. Sometimes there's a grey area and I will always send those cases to him, and he will make the call, not me.

How do you see implants developing in the future?

Apart from some minutiae, the implants I work with today are not much different to the ones I worked with in the mid-90s. Most of the current developments are just tinkering.

What has developed significantly are the surgical techniques, particularly in the field of regenerative, eg bone grafting and soft tissue grafting, and in the digital sphere, ie CBCT, 3D scans and digital impression

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Why should British dentists attend the AO annual meeting?

You get a really different cultural experience at this meeting than you might at some of the European meetings closer to home. It's a very different feel – both the socialising and the trade show. If you ask any of the Brits who go there regularly, they will say they absolutely love it and it is wholly different to what they get at home.

We alternate AO meetings between the East Coast and the West Coast. Next year it's going to be in Washington DC and the focus is going to be on Europe. I hope people reading this interview in the *BDJ* will consider becoming AO members to attend that meeting – it's cheaper to become a member and apply for the member rate at the meeting than it is to attend as a non-member. And you never know you might stay on as a member afterwards. We don't have many members from Britain which is a great sadness to me.

Do you feel there is a tension between implantology and endodontics, or are they complementary?

I don't think there's any tension. Indeed I have run lectures with my endodontic colleague, Julian Webber. We are both very clear: I refer teeth to him *all the time* for endo and he refers to me *all the time* for extraction and implants. A dentist needs to taking, which in my view is still not at the level it needs to be, but it will be very soon.

CAD-CAM technology and 3D printing – that's where the possibilities are huge in relation to implant dentistry. The little titanium screws are really as good as they can get now. After all, if you believe that success rates are in the 95–99% range and you allow for the statistical failure that must always occur, how can you possibly improve on that?

Ultimately, I think we will be implanting laboratory-grown or 3D-printed teeth in the future, but they have been threatening that for years!

Do you see implants ever being offered as part of NHS dentistry?

We can't really afford *dentistry* in the NHS let alone dental *implants*. I don't think the cost of implants will come down enough to make it feasible – it's had plenty of time and it hasn't happened. There are plenty of implants out there that are less expensive than the premium implants; the problem is that they are often seen to be less effective.

In my view, anyone using second, or third tier implants should think very carefully about how they practice implant dentistry. If you are going to do this properly and wrap yourself in blankets of security, you must use well documented and proven products and also commit the time to do it properly. All of this costs money, so if someone is offering an implant from start to finish for £500 why would anyone be surprised when it fails?

What medical research would you love to see become a reality in your lifetime? I think we are living the miracle today! It's not just implant dentistry, it's all of medicine. I have a friend who recently had open heart surgery to replace a faulty valve and within a matter of days he was walking down the

street looking perfectly well, fit and happy. And you think: 'oh my god, how is that possible?' What modern research and science can help do for us medically, dentally, and therapeutically, is just incredible.

I suppose the one thing that needs to be discovered with great urgency is an alternative to antibiotics because that is the elephant in the room. I hope to God someone finds it before it's too late.

What tips would you give to a dentist interested in 'specialising' in implant surgery?

People are graduating from dental school now with so much debt that the first pressure on them is to earn a living. This means that they are going straight into crowns, veneers and implants after graduation, all the most complicated stuff, when actually they need to be learning the basics. So I would say get used to being good at day to day dentistry before you become an expert at implant dentistry!

Of course there is currently no official specialism in implants. It's just semantics of course – if I'm not now an expert in implant dentistry then I don't know what I am. I've spent nearly 30 years studying, researching, teaching, practising, sleeping, eating, and breathing implant dentistry but according to the GDC I'm a specialist in oral surgery who limits his practice to implant dentistry. However, because there is no specific specialist pathway it's difficult for graduates to know the best way to train In this field: do you do a master's degree? Do you do some form of private practitioner's course? But how good is that course? Will people actually recognise it?

I would argue that for people to feel like they have done what they can to be able to consider themselves a specialist in implant dentistry, they have to do a formal postgraduate degree in dental implants or they have to specialise in periodontics, oral surgery or restorative dentistry. Otherwise it may be best to steer clear!