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BDJ Student

the British Dental Association's official magazine for students and first year graduates

WINTER 2016

UPFRONT

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EDITORIAL

Julie Ferry,
BDJ Student
editor

Anish Patel,
BDJ Student,
student editor

Having written my Autumn editorial about good intentions, I was wondering if you had managed to stick to yours over the past academic term? If not, now is the time to start afresh. Make some new year's resolutions, perhaps including one or two about reviewing lecture notes, being more organised on clinic and getting round to some of that extra-curricular stuff to beef up your CV?

Whatever your new year's resolutions are, we have some of our own at *BDJ Student*. Over the past few months we've been trying to look at dentistry as a whole and not just focus on the aspects that traditionally appeal to students, although they are very important. So, in this issue we are trying to give you a glimpse into aspects of dentistry with which you might not be very familiar: such as clinical governance and clinical audit, what you should look out for when buying a pair of loupes and what it means to forge a career in income protection.

Of course, we still have our regulars, including a look over what has been covered in the other BDJ since our last issue, a look at Liverpool Dental School and an ethical dilemma advising on how to deal with complaints. There are also new columns including Dr Adam Patel's Question Clinic, where he answers your questions; and Charlotte Leigh taking over the reins as our resident SHO. We hope you enjoy! **Julie Ferry** ■

Hello everyone and welcome to my second issue as student editor of *BDJ Student*. I hope you've all had a pleasant first term back; the BDSA Sports Day in Leeds was an exciting personal highlight. Congratulations to Sheffield for winning the overall sports competition!

Having settled into this new role, I thought it may be interesting to offer an individual perspective on something that is becoming an increasingly common experience among newly qualified dentists. Following conversations with some individuals in their first year of DF1 training, an underlying theme of pessimism and dissatisfaction has seemed apparent. While they've thoroughly enjoyed developing their skill-set and the increased social interaction, some believe that dentistry hasn't completely matched their expectations.

The regulatory and cultural changes dentistry is currently experiencing is a predominant topic and many have said how this has led to an inability to provide the quality of care to which they aspire. This feeling of a lack of reward and reduced prospects seems also to have trickled down to some students.

Personally, I think that despite today's more uncertain dental climate, we should remember that all professions are subject to such cycles of change. Dentistry remains a respected and prestige profession and the challenges should be met with a positive outlook. As students I think that using our time at university to develop both our clinical and softer skills is a great preparation tool, which will be useful in any dental setting in the future. Maybe we should concentrate more on creating a community to try and encourage cohesive learning among ourselves?

As always, feedback and contributions are most welcome! I hope this edition provides an insightful read. Good luck for the term ahead and best wishes for 2016. **Anish Patel** ■

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NEW: *BRITISH DENTAL JOURNAL* FOR THIRD-YEAR STUDENTS

In response to student demand, we are pleased to announce that the *British Dental Journal* (BDJ) will now be posted twice a month to all third-year student members.

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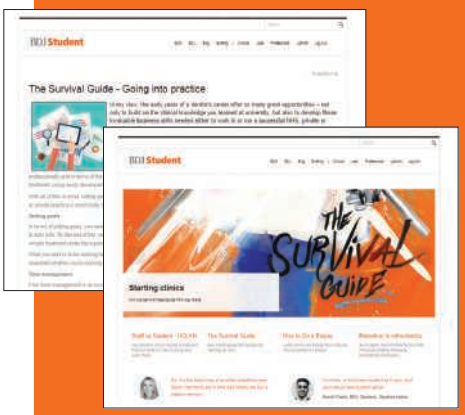

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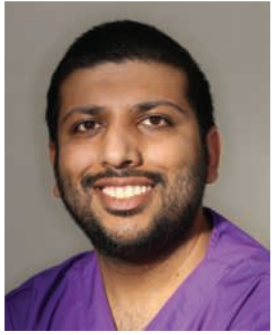


WORKING FOR YOU

The BDA has over 30 committees, each dealing with a wide range of issues. From general practice and the community dental service to salary levels and regulatory requirements, they are at the forefront of dental politics, representing BDA members on key issues that affect their careers. In this regular column, *BDJ Student* finds out more about what really happens at the heart of your trade union. This issue we ask **Harman Chahal**, chair of the Young Dentist Committee, to explain a little about its role.

At the BDA's Young Dentist Committee (YDC), we've been hearing stories of how some newly qualified dentists are so afraid of making mistakes, of fearing the wrath of the General Dental Council, or being sued by their patients, that they are referring cases that they really should be able to take on, and in fact, they really need to, to develop and further their skills.

I'm passionate about ensuring young dentists have the chance to acquire the full range of skills they need in practice. The YDC has begun a project specifically looking at minor oral surgery and we are going to speak to all the stakeholders involved, including undergraduate schools and postgraduate deaneries and contract holders to find out what can be done to ensure young dentists are confident in their skills.

We're also aware that the path for those going into dentistry now is becoming increasingly more difficult, with mounting debt and declining prospects. Newly qualified dentists have to pay for five years of tuition, rising indemnity costs and registration fees. Last year, the BDA mounted a successful campaign to stop plans by government to cut dental foundation training pay, but the threat re-mains, with government looking to make savings wherever it can each year.

The current lack of clarity on what the NHS will cover in terms of specialist treatment is also frustrating. I believe the upcoming generation of dentists will need to upskill in response to an ageing generation that has complex needs, but until we know what the NHS will provide, young dentists cannot plan their future-career pathways, and decide if investing in time- consuming and expensive specialist training is worth it. The BDA is working hard behind the scenes to negotiate with government on contract reform and training pathways to get the best deal it can for dentists.

> 'The current lack of clarity on what the NHS will cover in terms of specialist treatment is also frustrating.'

I want to see more young dentists getting involved in dental politics. The road ahead is not going to be easy and we need to unite and pull together as a profession, to ensure that our voices as young dentists are heard and to ensure that our senior colleagues have solidarity with us. I urge you to step up: join your Local Dental Committee, go along to your local BDA branch or section, many are now setting up Young Dentist Groups and need your support. Doing this will not only keep you in-formed of the issues, but also offers a great opportunity for networking and socialising. Who knows where it might take you?

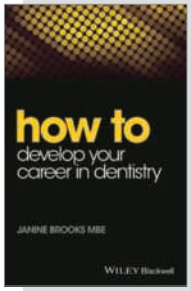
Don't feel you are on your own. The BDA has a growing number of young dentists getting involved and active, so please join us. Remember, that together we are stronger.

To keep up-to-date with the latest on the BDA's work, you can follow us on Facebook https://www.facebook.com/thebritishdentalassociation/.

Harman Chahal

REVIEWS: BOOK

HOW TO DEVELOP YOUR CAREER IN DENTISTRY, JANINE BROOKS, WILEY BLACKWELL, 2015



My initial reservations in relation to How to develop your career in dentistry, was that it would be a book of most benefit to qualified dentists. However, I soon realised that the content is of considerable relevance and value to students.

The book is a worthwhile resource, offering a bundle of information and advice about how to make the most out of your career.

One of the themes I really enjoyed was the concept of a 'portfolio career.' The notion introduced encourages involvement in activities beyond and not directly related to dentistry, emphasising the transferable skills that can be developed. This also linked in with career opportunities available both within, and outside, dentistry. I felt this was most helpful in raising awareness of the different options available beyond the most common route of primary care.

There is also a chapter on coaching and mentoring where the idea of finding an individual to seek guidance from is strongly recommended. Tying in nicely with this, is the information on networking and developing a 'network map.' The topics of how to build, maintain and expand social circles are all covered!

For those individuals considering further study after BDS, the material provided about different training and qualification options available is very broad. The entire range of different specialty programmes and career path journeys are all covered along with their approximate costs. Contact details of the providers of post registration training are also included, providing a comprehensive platform for further research.

'The notion introduced encourages involvement in activities beyond and not directly related to dentistry, emphasising the transferable skills that can be developed.

Overall, the content and information shared is of great benefit to anyone involved in dentistry. With top tips, insights and career highlights from a range of dental professionals included throughout the text, I would definitely recommend it as a concise, valuable and easily digestible read. **Anish Patel, *BDJ Student* student editor**

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EVENTS ROUND UP

BDA British Dental Conference and Exhibition

The BDA British Dental Conference and Exhibition brings together thousands of students, dentists and dental professionals to Manchester for three days of learning, innovation and inspiration.

The Conference & Exhibition is an excellent opportunity to meet like-minded professionals and future colleagues, watch live demonstrations, explore new technology, and pick up new clinical, CV and career advice. With world-class presenters, it's the UK's biggest combined dental conference and exhibition!

All BDA student members receive a complimentary Conference Pass so make sure you don't miss out on this event. Visit www.bda.org/conference to claim your complimentary pass for 26 – 28 May 2016 in Manchester.

Careers Day

Each year, Careers Day draws in students and young dentists for a day of exploration.

The day consists of bite-size lectures by knowledgeable speakers drawing on their experiences to give you invaluable insight into your career options. You'll also have the opportunity to connect with dentist employers and support organisations who will be exhibiting throughout the day.

New sessions for 2016 include *Minor oral surgery in practice, The importance of CPD and personal development plans, Top tips for getting your first dental job, Developing your career and work/life balance and Specialist training and beyond.* Attendees can also book into our CV Clinic to get one-on-one expert opinion.

Join your future colleagues on 12 February 2016 in London for a day of learning and net-working. For more information and to book, visit www.bda.org/careersday.

BDSA Annual Conference

This year's BDSA Annual Conference takes place in Liverpool from 3-5 March 2016. With clinical lectures from leading dental academics, fabulous socials and a huge trade show, this is an event not to be missed. BDA student members get £13 discount off ticket prices too.

To find out more and book your tickets go to www.bdsaliverpool.co.uk.

ARE YOU PLANNING TO MOVE HOUSE?

Don't forget to keep us up to date with your contact details to make sure you maintain full access to your BDA student member benefits package. It's easy to do this: just call 020 7563 4550 or email membership@bda.org with your new contact details.

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REVIEWS: BLOG

A Tooth Germ

A Tooth Germ (http://atoothgerm.blogspot.co.uk) is a fairly new blog run by Natalie Bradley, a recently qualified dentist currently undertaking her foundation training in London. With the definition of 'Tooth Germ' stated on the blog itself, Natalie, like a tooth germ, is just starting out in the dental world and this truly is at the heart of her entire blog. She documents her own experiences and the knowledge she learns from her foundation training, study days, dental courses and dental events. While the appearance of the blog may not capture your eye and navigation to previous posts is somewhat tedious, the content certainly makes up for this. Covering topics ranging from oral surgery, endodontics and prosthodontics to tips for interviews, revision and other must-know topics for dental students, Natalie teaches as she learns herself, maintaining a personal touch in every one of her posts - even topics like occlusion are made remotely interesting!

> 'Natalie teaches as she learns herself, maintaining a personal touch in every one of her posts - even topics like occlusion are made remotely interesting!'

What really brings *A Tooth Germ* to the top of its game, however, is that there are new posts on a weekly basis, giving readers a constant stream of information to come back to. *A Tooth Germ* also features guest posts from well-known dentists, overviews of events, as well as posts on travel and living in London, allowing *A Tooth Germ* to be more than just your average dental blog. *A Tooth Germ* is a refreshing blog among the plethora of dental websites saturating the web. While it is fundamentally a personal blog, it is packed with up-to-date knowledge and tips that are shared in such a way that it feels as if a friend was telling you what they had learnt today. Share Natalie's journey as a young dentist on *A Tooth Germ* and you'll learn as you go along with her. **Akta Prabhakar, blogger at *Dental Spotlight***

LIFELINE

One in 12 dentists have serious health problems (particularly relating to alcohol, drugs and stress during their practising lives. Fortunately, the Dentists' Health Trust and Programme (DHSP) are there to help. The DHSP has been helping dentists with health problems for almost 25 years. It is a charitable organisation which is funded by dentists for dentists, but now also supports dental students and any other registrants who make contact.

One dentist who got in touch with the DHSP explains how it helped her:

"You leave dental school an idealistic young thing full of hopes and plans for the future. You think you will work in practice, maybe a bit of hospital or community and then settle and buy your own place and practise the dentistry you were taught and have honed over the years.

Then life has other plans. Maybe there's a bereavement or a divorce or financial problems or maybe all of that at once. And you find yourself just getting by, maybe not paying the attention you used to, getting snowed under with paperwork, referrals, reports, demands from patients and staff.

> 'You think that you are coping. You may or may not be turning to drink or drugs. You may or may not be sleeping.'

You think that you are coping. You may or may not be turning to drink or drugs. You may or may not be sleeping. You may or may not be eating properly and getting exercise. However, the stress is there - you just don't really realise it. Then the NHS call and you know that you are in trouble.

I was referred to the Dentists' Health Trust and Programme – a group you have probably never heard of before but who tell you they have dealt with loads of cases like yours. They reassure. They advise. They sympathise. They let you know you are not alone. They encourage you to talk to others nearer home. But mostly, they lis-ten…and keep listening.

I never thought I would need them, but it has been my lifeline. I accept their help and that of others now. I don't dread tomorrow. I can now look forward to a future."

If you think you might benefit from the programme or you have a friend or colleague who needs support contact 020 7224 4671 or email dentistsprogramme@gmail.com.

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TWITTER

#AskBDA explores career paths

The BDA's career advice Twitter Q and A reflected the wealth of choices available to new graduates. During the event, held on 15 September, the hashtag #AskBDA was used to put questions to a panel of BDA experts on all aspects of life after graduation. However, questions focusing on careers paths, such as specialisation, further training and working abroad, proved most popular.

> 'Advice from the panel stressed the importance of exploring the different roles available before committing'

The event has come at a time when young dentists have more options than ever, something that can be both liberating and challenging. Advice from the panel stressed the importance of exploring the different roles available before committing and of getting a good grounding through the UK's foundation and vocational training systems, essential if dentists wish to keep their options open.

Chapter four of the BDA's *Into Practice* Guide, available to download for free for members and the dedicated newly qualified pages of the BDA website, www.bda.org/startingout, were referred to help new graduates further explore their choices.

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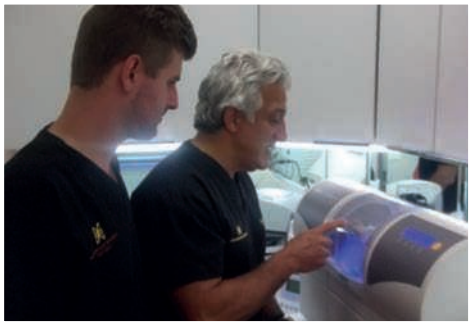

In our regular series on dental-student experiences, Joseph Gray describes his experience of an elective project in New York

Like most of my fourth-year colleagues, during my final summer holiday as a British dental under-graduate, I decided to embark upon an international elective project, to expose myself to an entirely different social and cultural environment. However, unlike most of my fourth-year colleagues, my elective did not consist of delivering community dentistry in Cambodia or Thailand. I was instead given the chance to organise a month-long observational externship in Manhattan, New York, where I shadowed Dr Gerald Curatola, a highly respected "aesthetic and wellness expert", at his treatment centre located on one of the most affluent avenues of the city.

From the first day of observation at Rejuvenation Dentistry, it was evident that Dr Curatola had developed an incredibly successful career through his personality, procedural knowledge and aesthetic handiwork. Academic certificates and accolades decorated the corridors of the clinic, hung along-side testimonials and acknowledgments from various high-profile clients and celebrities. Considering the relatively small size of the workspace, the facilities that were available on site were also very impressive, including CAD/CAM (computer-aided design/computer-aided manufacturing) ceramic restoration milling facilities, solid-state digital radiography and an erbium, chromium: yttri-um-scandium-gallium-garnet (Er,Cr:YSGG) dental laser, all of which were technologies that I felt exceptionally lucky to familiarise myself with as a dental student from the UK.

Throughout the duration of my externship, Dr Curatola shared with me various procedures and advanced operative knowledge, including entirely new techniques or concepts that had merely been alluded to during my years of study, such as the process of restorative implant placement and maintenance. Having explored some literature on laser therapy for a university paper last year, I was especially intrigued to observe this particular form of treatment and was further surprised to discover that the device was anything but peripheral; during the course of my short stay, the ma-chine displayed an impressive amount of diversity.

To further my educational experience, a week of observation at the New York University (NYU) Dental School was also arranged, as Dr Curatola is both a clinical teaching professor and board member for the institution. While there, I met various admissions staff, clinical teaching associates and students to gain insight into the training style currently employed on the course, as well as attitudes to practice in the US and how an international graduate could pursue enrolment to an American university. It was fascinating to hear differing points of view from the various students: however, the general consensus did appear very "prevention and preservation" oriented, not unlike the familiar standards taught here in the UK. It was a surprising revelation, given the assumptions I had initially made of America's privatised healthcare system.

To summarise, I would say that the main limitation of my experience in New York was the lack of hands-on, practical experience. However, the knowledge, insight and professional network I accumulated was more than adequate compensation. I would confidently encourage those seeking electives in the future to consider a similar opportunity.

Joseph Gray, fifth-year student at Manchester

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CORRECTION

In our Autumn edition, Ajay Mehta and Annie Pellatt's names were misspelt. We would like to correct this error in this edition and offer our sincere apologies to those involved.

GOOD NEWS FOR GRADUATE JOBS AND PAY

In 2015 the BDA was pleased to see our hard work pay off with good news on dental foundation training salaries and jobs.

Dental foundation training salary

In August 2015 we were pleased to announce that, for the 2015 foundation dentists, the salary was confirmed as £30,732. Not only did this mean that the salary had not been reduced as feared, but that a one per cent pay rise had been implemented as per the Doctors' and Dentists' Review Body recommendation.

It is important that you are aware that plans remain to review the DFT salary. The BDA has a very close eye on this issue and will fight the corner for young dentists if and when such proposals are made.

Dental foundation training places

In addition to the DFT salary increase, more good news came a few weeks later when COPDEND published its final information on place allocations in 2015. This showed that, for the second year running, all eligible UK graduates had received a training place. We have campaigned hard for this over the years, and hope that the Department of Health, Health Education England and the deaneries in the devolved countries are taking heed and putting into place plans that will assure that this continues each year.

> 'It is important that you are aware that plans remain to review the DFT salary. The BDA has a very close eye on this issue'

Balloted for strike

On a less positive note, many of you will have seen the news that junior doctors have recently been out on strike due to the imposition of a changed contract. While not relevant to dental foundation training directly, this is relevant for those who are planning to move to dental core training and specialist registrar posts in hospital later, so we advise you to follow this story closely.

Keep up-to-date with these stories and more by reading your monthly *BDJ Student* enewsletter and Student Committee updates at www.bda.org/student-news.

Revision packs

Exam time is looming, so to help with your revision, we have developed some topic collections. These cover a range of subjects including restorative dentistry, endodontics and minor oral surgery and include:

- Medline search articles
- Cochrane reviews
- Clinical guidelines
- Policy documents
- Recent *BDJ* articles
- Links to relevant eJournal articles

Go to www.bda.org/student-library to find out more.

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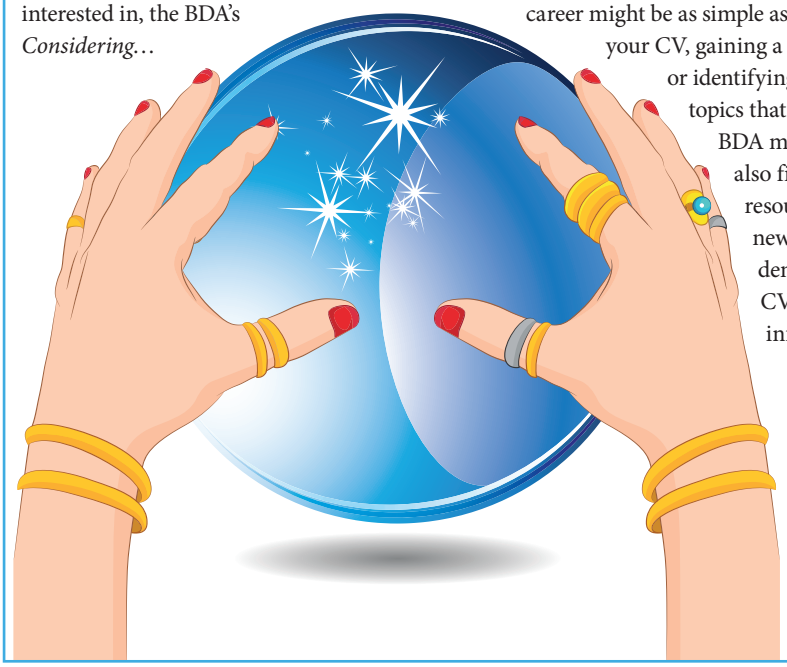
CRYSTAL BALL GAZING

The problem with predicting the future is that we can't. We cannot know for sure which path in life will bring us most satisfaction or which decisions we will regret in five years' time. This is something that is particularly frustrating when starting out in your career. While the opportunities are exciting the pressure to choose the 'right one' can be overwhelming.

However, hearing about the experiences of others can help you see more clearly: for example, talking to mentors and trainers or even shadowing a willing colleague for a day. If you are unable to speak to someone from the particular area (or areas) you are interested in, the BDA's *Considering…* videos are a good place to start. These feature practitioners who are five, 10 or 20 years post-graduation discussing the realities of their chosen areas and choices. From taking time out to work abroad to pursuing specialist training. If you've already decided, they also have tips to help you get into the area you are passionate about. Visit www.bda.org/startingout to find out more.

Still not sure? Luckily as a dentist you do not need to commit straightaway to a set career path. Gaining a broad experience in your first few years of practice will open doors not close them. The first steps to gaining that, as yet unspecified, fulfilling career might be as simple as perfecting your CV, gaining a fair contract or identifying some CPD topics that interest you. BDA members can also find practical resources for newly qualified dentists, such as CV examples or information on free contract checking on the *Starting Out* pages.

So yes you cannot see the future, but you can listen to others who have already made those choices you are considering. You can also prepare a foundation while you decide. If you give your-self the chance to explore your options fully, the ambiguity of where your path might lead can be part of the excitement.



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> 'These feature practitioners who are five, 10 or 20 years post-graduation discussing the realities of their chosen areas and choices.'

Here are the clips created by the Young Dentist Committee for YouTube.

- Considering speciality training in periodontology? Reena Wadia's top tips https://www.youtube.com/watch?v=7nJ_abkYWto
- My journey: specialising in periodontology https://www.youtube.com/watch?v=EfWvl221sOU
- Dentists' professional development: why communications skills are so important https://www.youtube.com/watch?v=0cvk2I_ZmBU

CAREERS RESOURCES

To help with your career planning the BDA has put together some helpful online resources.

- **Video:** Advice from other members on why they chose their career path and what to consider if you want to do the same
- **CV and interview help:** Make the right impression with the BDA's advice sheets and CV templates
- **Further study:** Educational options, from DF2 to specialisation
- **Alternatives:** Volunteering and working abroad
- **Contracts:** Examples, advice and the BDA's member contract-checking service.

To find out more go to www.bda.org/careers

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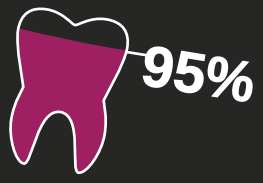

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STUDENT

➤ Jignesh Panchal, *a fourth-year BDS student on the A201 graduate entry programme*

"As I already had a relevant undergraduate degree, I was able to enter directly into the second year of BDS. The graduates who enter onto the accelerated A201 programme have an intense course of phantom-head training before the rest of the undergraduate students begin and the two programmes merge. For me, Liverpool was the ideal place to continue studying.

'The graduates who enter onto the accelerated A201 programme have an intense course of phantom-head training before the rest of the undergraduate students begin and the two programmes merge.'

I had already settled into this wonderful and vibrant city and the structure of the course was definitely suited to my learning style. In contrast to the traditional lecture and lab-based teaching structure of my previous degree, dentistry at Liverpool is taught with a mixture of PBL, lectures, seminars and clinics. The small-group teaching sessions really help with a more personalised and comprehensive learning experience.

One of the best things about Liverpool Dental School is the variety of clinics that the students are timetabled for. From primary-care emergencies to special care and oral medicine to maxillofacial surgery, we are exposed to all aspects of dentistry in a very hands-on manner.

With Merseyside having some of the most socially deprived areas in the country, we see lots of patients who are in serious need of dental education and rehabilitation.

The nurturing educational environment at Liverpool certainly plays a big role in the success of the dental students. Each student is allocated a member of staff who acts as their first port of call should any issues arise. This is a very good system and ensures that students' needs and well-being are taken care of.

The Liverpool University Dental Students Society (LUDSS) is a very integral and active part of the school. Throughout the year they put on various social events for both staff and students including a sports day, the annual revue, Christmas meals and trade fairs. The dental school is also very encouraging of extra-curricular activities. I live opposite the dental school and very close to the city centre and the docks. It's a great central place to live and there is always something happening.

I have also recently set up a dental society that aims to connect Liverpool alumni with current students. LUNA (Liverpool Undergraduate Networking Association) organises a few lectures each term, based on dentistry outside of the dental hospital. Recently we had a GDP come in to talk about volunteering opportunities in Africa. These events are a great way for students to get an idea of dentistry outside of the hospital and curriculum.

Of course, no degree programme is perfect and there are always things that can be improved. We do still use paper notes and perhaps an electronic system could modernise the dental hospital. One of the restorative clinics is also starting to become a little old and dysfunctional, and so over this past summer the whole clinic was refurbished and it now looks fantastic.

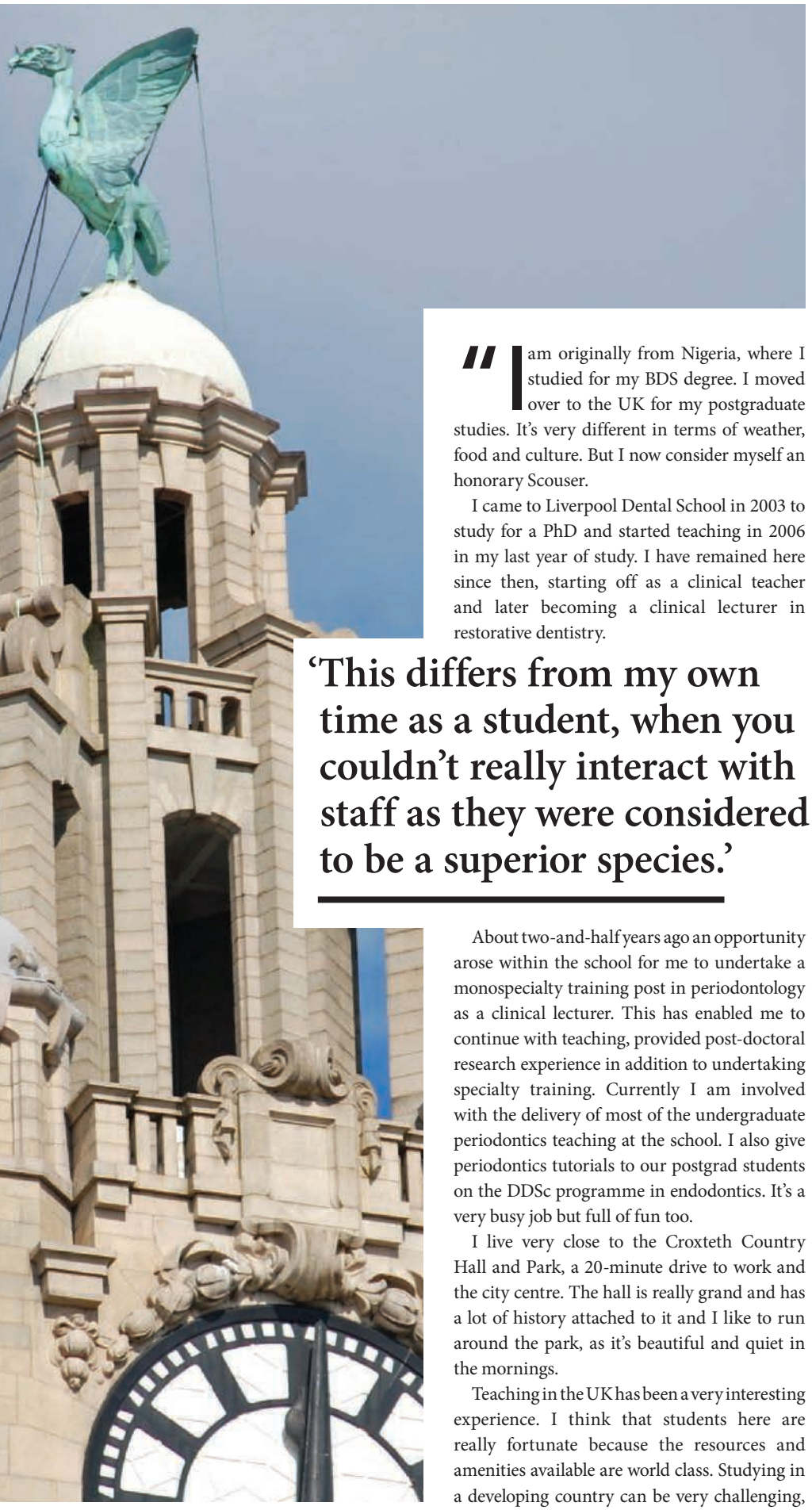
One of the exciting things about dentistry is that it is an ever-changing profession but it can be difficult to predictably plan for the future. However, I would love to split my working clinical time between general practice and a hospital-based position, maintaining interests in both restorative dentistry and oral surgery."

Jignesh Panchal ■

STUDENT VS STAFF

LIVERPOOL

Hazel Davis discovers what it's like to study and work at Liverpool Dental School, by talking to those on both sides of the academic spectrum



STAFF

➤ Dr Jumoke Adeyemi, *NIHR clinical lecturer in periodontology, teaching primarily on the BDS programme, also delivering teaching to the School of Dental Hygiene and Therapy*

"I am originally from Nigeria, where I studied for my BDS degree. I moved over to the UK for my postgraduate studies. It's very different in terms of weather, food and culture. But I now consider myself an honorary Scouser.

I came to Liverpool Dental School in 2003 to study for a PhD and started teaching in 2006 in my last year of study. I have remained here since then, starting off as a clinical teacher and later becoming a clinical lecturer in restorative dentistry.

'This differs from my own time as a student, when you couldn't really interact with staff as they were considered to be a superior species.'

About two-and-half years ago an opportunity arose within the school for me to undertake a monospecialty training post in periodontology as a clinical lecturer. This has enabled me to continue with teaching, provided post-doctoral research experience in addition to undertaking specialty training. Currently I am involved with the delivery of most of the undergraduate periodontics teaching at the school. I also give periodontics tutorials to our postgrad students on the DDSc programme in endodontics. It's a very busy job but full of fun too.

I live very close to the Croxteth Country Hall and Park, a 20-minute drive to work and the city centre. The hall is really grand and has a lot of history attached to it and I like to run around the park, as it's beautiful and quiet in the mornings.

Teaching in the UK has been a very interesting experience. I think that students here are really fortunate because the resources and amenities available are world class. Studying in a developing country can be very challenging, with limited resources, amenities and unstable political climates, and doesn't really create a holistic student-learning experience.

The relationship between staff and students here is very cordial. While we have a formal teaching environment and members of staff strive to be approachable at all times, we interact with students as individuals and get to know them really well. This differs from my own time as a student, when you couldn't really interact with staff as they were considered to be a superior species. We also have student representatives from each year in the staff-student liaison committee, which is great as a key driver for change and improvement in the school.

The Liverpool University Dental Student Society (LUDSS) is run by students who are elected to run it and organise various events for the student body. Staff have generally supported by judging at charity bakeoffs, performing at concerts, taking part in staff-student golf days, joining the Three-Peaks Run and attending the annual dental ball, which brings the entire school together.

The pastoral support in Liverpool is excellent. We have a fantastic team who provide round-the-clock advice and support to our students. Full-time members of staff are also assigned to students as academic advisers to help with any academic issues.

We constantly look out for ways to improve the programme and take feedback from students seriously. As a research-led university, it is really great to be able to integrate outcomes from our research into our undergraduate teaching. I think the best thing about our school is that we have a dynamic environment where everyone is valued as part of the team. It's a great place to work."

Dr Jumoke Adeyemi ■

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ETHICAL DILEMMA

Complaints are something most dentists fear, so what do you do if you receive one? **Leo Briggs**, deputy head of the Dental Defence Union (DDU) advises on handling the situation

I have only recently joined my first practice as an associate and I am dismayed to have received my first complaint. The patient told me she hated her discoloured teeth as soon as she sat in the dental chair. She is a smoker and said that she likes to drink red wine, so I tried to explain that these habits were contributing to the problem but she forcefully told me this was none of my business and demanded that I whiten her teeth. I did not want her to criticise me to my new employer, so I reluctantly agreed. Unfortunately, this has backfired because she has written to complain that she is unimpressed with the results and that her teeth are now very sensitive. The complaints manager has asked me to attend a meeting with her and the practice principal to discuss the patient's grievances. What should I do?

It is always distressing if you receive a complaint but it is something that happens to most dental professionals at least once in their career. It is important to try and stay calm because the practice will want your input when responding to the patient's complaint.

All dental practices should have a publicised in-house complaints procedure to address complaints about private treatment and the complaints manager will follow this when responding to the patient.

First, review your notes and write a factual account of your interactions with the patient for the complaints manager. Records are an essential part of patient care and are useful when responding to patient complaints. Your response should include the oral-health advice you offered, warnings you gave about the treatment and its possible side-effects, as well as any aftercare advice.

During the meeting with the practice principal and the complaints manager, a calm, professional manner is important. Be honest and open about your motivation for providing treatment, and show you have reflected on what happened rather than seek to justify any mistakes.

Before sending a response to the patient, the complaints manager should show you a draft of the practice's written response, so that you have an opportunity to correct any factual errors. The response should deal with all the points raised in the complaint and may include an invitation to discuss the matter further, an apology or even a goodwill gesture. If you have concerns about the content, discuss these with the complaints manager or seek advice from your dental defence organisation. It is important not to delay responding to a complaint as the response must be sent within strict time limits.

'It is important never to allow yourself to be persuaded to prescribe treatment against your clinical judgement.'

In the DDU's experience, most complaints are resolved locally, but if the patient is not satisfied she may take her case to the Dental Complaints Service (DCS). The DCS reviews complaints about private treatment and is only concerned with the way the complaint was managed (rather than your professional abilities). In such cases it will help if your practice can demonstrate that it responded constructively and in line with its own published complaints procedure. The DCS is strongly in favour of local resolution and refers almost three-quarters of complaints back to dental practices. Most of these are resolved satisfactorily by the practice and less than one-fifth is returned to the DCS.

Receiving a complaint can be frustrating and stressful, especially if you have made every effort to keep the patient happy, but try to learn from this experience.

Dental professionals are always expected to provide treatment that is appropriate and in the patient's best interest, and to warn of the risks and limitations of any treatment. It is important never to allow yourself to be persuaded to prescribe treatment against your clinical judgement. Equally, if you believe the patient's expectations are unrealistic, it may be wise to refer them to a senior colleague. Saying no usually gets easier with experience, but if you find it difficult, it may be worth seeking advice from practice colleagues or attending a course to improve your communication skills. **Leo Briggs** ■

Key points to remember

- Familiarise yourself with your practice complaints procedure
- Work with your practice complaints manager to ensure that any complaint is responded to honestly and efficiently
- Be honest about why you provided the treatment, do not try to justify any mistakes and do show that you have reflected on the situation
- Remember that most dental professionals will have a complaint made against them at some point in their career
- When treating a patient, always keep clear, concise, complete and contemporaneous records – not only are they an important part of patient care, but also they are useful when responding to a complaint
- Contact your dental defence organisation for additional guidance and support.

For more information, visit www.the-ddu.com

SEEING CLEARLY

Dental loupes are a hot topic of conversation among dental students. **Jignesh Panchal**, a fourth-year student at Liverpool Dental School, discusses some of the factors that need to be considered before choosing the ideal pair

Many dental students and young dentists will have heard about loupes and even tried them on at various dental conferences and trade fairs, but what exactly are they? A dental loupe is essentially a small magnification device that allows the user to see in more detail. In this age of minimally invasive dentistry (MID), there is an emphasis on preserving as much natural tooth structure as possible. This is where using adjuncts to your work, like dental loupes, can give you, and your patients, an advantage.

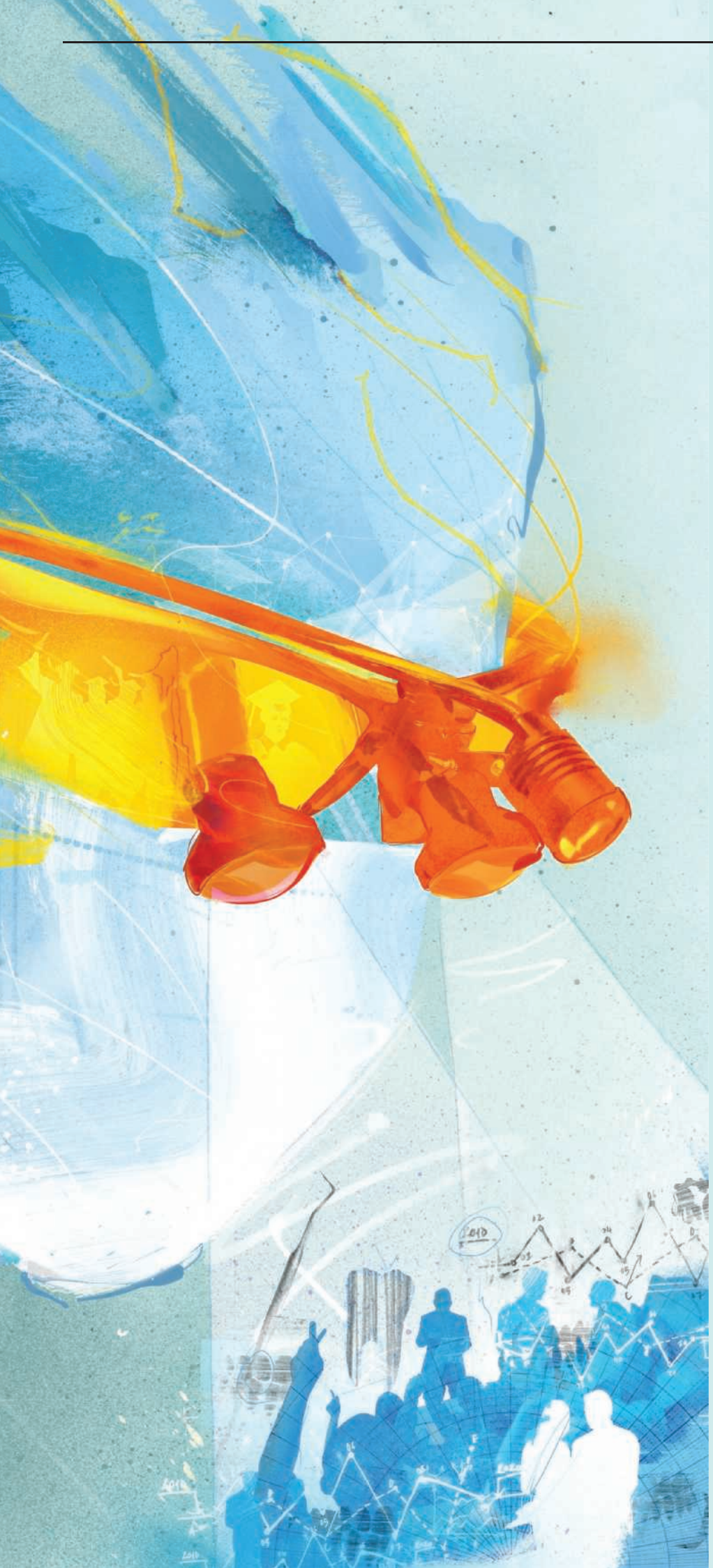
At dental school, all of your dentistry is monitored and assessed by clinical tutors and many of them will use loupes to evaluate your work. This automatically puts you at a disadvantage in the sense that they are judging your work at a much greater level of detail than you have worked to. A crown preparation completed under direct vision will likely be of different quality to one completed under a magnification field of 2-4x. Of course, there are many benefits of magnification, but it is also important to consider when to use loupes because they may not always be necessary. For example, magnification is particularly beneficial for restorative work, but may not be appropriate for prosthodontics and extractions.

Using dental loupes does not only confer visual benefits to your work, but also ergonomic advantages. Given that poor posture is one of the main reasons why 60-80% of dental professionals have chronic back and neck problems, it is essential that dentists do everything they can to help maintain a correct working position. Wearing loupes will automatically put you in a better seated position, which will help to reduce posture-related problems. Because each pair of dental loupes has its working distance customised for the operator, you must assume a correct working posture to keep your vision in focus i.e. back straight and shoulders back and relaxed. This, in turn, will reduce eye strain and back, neck and shoulder tension.

‘Wearing loupes will automatically put you in a better seated position which will help to reduce posture-related problems.’

Loupes checklist:

The importance of trying a pair of loupes before you invest in them cannot be stressed enough and many companies will offer a no-obligation trial period. As any young dentist can appreciate, loupes are expensive so it is vital to ensure that you are investing in the right equipment. Since there are many variables, there is no real ‘standard’ set of loupes per se, but rather each pair should be tailored to your individual requirements. Here are some points to consider.



- Magnification – Magnification is the process of enlarging the appearance of something. With an increasing magnification comes a decreased field of view, hence a higher magnification is more difficult to get used to. Magnification of dental loupes can range from 2x to 8x. Often clinicians will move up in magnification as they become more comfortable and experienced using loupes. Most people will begin with a 2.5x magnification, which is ample for the complexity of work done in the early stages of your dental career.

- Through The Lens (TTL) or Flip-Up loupes? – These are the two basic structural configurations of dental loupes and each of these effects the other variables. With TTL loupes, the telescopes are directly fixed to the lens of the glasses. TTLs tend to be lighter and, because they are customised to your individual requirements, the optical benefits can be greater. Flip-up loupes have a hinge system that allows them to be adjusted and moved out of the way when not needed. Flip-up loupes are not operator-specific and can easily be shared among clinicians: however, they are heavier and have a narrower field of view. If you wear glasses, prescription lenses can be built in to both types of loupes. Bear in mind that if you want to upgrade loupes in the future and your lens prescription has changed, this will often be at an added cost.

- Resolution – Resolution is the ability to distinguish one small structure from another. The design and quality of the lens will influence the resolution. Ideally, a good quality loupe will provide adequate resolution across the majority of the field of view.

- Working distance – Working distance is the distance between the operator's eyes and the patient's mouth. This should be set in relation to your height and correct working posture. As a general rule, the taller you are the greater your working distance.

- Field of view – The field of view is the total size of the operating site in focus when seen through the loupes. TTL loupes offer a wider field of view because the magnifying lenses are mounted closer to the eyes.

- Depth of field – Loupes will be customised to a particular working distance. Depth of field is the range at which the loupes can stay in focus. With a higher magnification, the depth of field is reduced.

- Weight – Ideally, loupes are designed to be lightweight, so they don't contribute to neck muscle fatigue. TTL loupes are usually lighter than flip-ups, especially at the higher end of the magnification scale. The weight of an added headlight should also be considered.

- Peripheral vision - When wearing loupes it can be easy to become very focused on the little details. However, it is important not to lose sight of your patient and the rest of the dental team. With flip-ups, your peripheral vision can be easily restored. However, TTL loupes give you less peripheral vision because the lenses are not movable. It can take a little while to get accustomed to using loupes and the extent of peripheral vision may help.

- Light – After a period of using loupes, you may want to introduce a headlight to help with your vision. Attaching a light to your loupes can further illuminate critical details that can easily be missed by the naked eye under normal dental lighting. As these lights are mounted on your headgear, they do not need to be constantly adjusted as they move with your head movements.

- Frame - Another feature that can be customised is the choice of frame. This is down to personal preference and all the major companies have various models to choose from.

- Cost - The more affordable loupes tend to be attractive to students, and many will take advantage of various undergraduate offers during dental school and then upgrade to a premium product once in practice. Others will invest more from the outset in a quality pair in the anticipation that they will last longer.

I have recently reviewed three pairs of loupes currently on the market, which vary in their respective styles and specifications. After using them over the course of several months, mainly for simple restorative procedures, I have written my thoughts on each.

Company: Orascoptic

Model tested: HiRes 2.8x with a Legend aluminium frame

These loupes have a very nice feel to them and are solid and sturdy. There wasn't a great deal of difference between the 2.5x and 2.8x magnification, but the HiRes loupe offers a greater definition than a standard Galilean (TTL) loupe, and the edge-to-edge clarity of this set was also better. I found this pair to be particularly useful when doing composite work and crown preparations. At the more-premium end of the market, these loupes are certainly a bigger investment to make. However, it is anticipated that buying such a pair will last you for many years.

Company: UK Loupes

Model tested: Galilean Flip-up 2.5x with a sports frame

At a weight slightly heavier than the Orascoptic set, the flip-ups had a good sturdy feel to them. Initially I experienced some minor double vision, but the flip-up loupes allow for some easy adjustments to optimise your settings. The 2.5x magnification is optimal for the type of basic work that students will be undertaking. One added benefit of starting out with a flip-up pair is that if you want to go back to normal vision, you can easily do so simply by moving the hinge mechanism upwards. This is great for prosthodontic work where you may not always need magnification. I found that the through-the-lens loupes suited me better: however this is down to personal preference. This is a great affordable pair to get you started and will significantly improve your vision and posture.

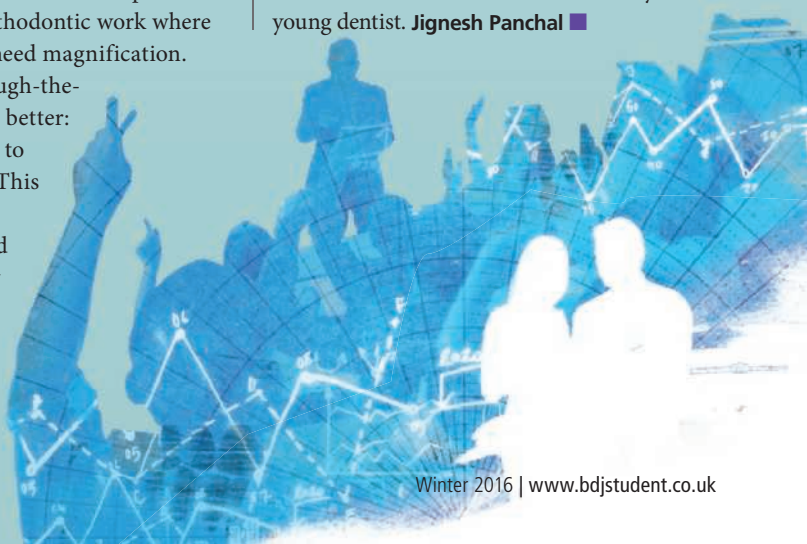
Company: Optioned

Model tested: Galilean 2.5x 450 PRO

This Optident model was the last of the loupes tested in this review. These were a very comfortable pair and, although the visual aspects were very similar to the Orascoptic set, these were noticeably light in weight compared with the others, which made them very easy to use. The size of the optics is a little smaller so you have a greater peripheral vision with this pair. Further contributing to better peripheral vision was the larger size and curved aspect of the lenses. The head strap provided was not just a simple lanyard and was very secure and comfortable. This is another great set to start out with for young dentists but again a slightly bigger investment to make.

'I anticipate that I will move up in magnification as I become more accustomed to working with loupes and the complexity of my cases becomes more challenging.'

Irrespective of which pair you choose, investing in loupes will certainly benefit your clinical dentistry. Given the well-documented benefits that they confer to your clinical and physical dentistry, I have decided to invest in magnification during my undergraduate studies. Not only do I enjoy my dentistry more, but also I am able to work closer to my clinical potential. After talking to many clinicians, I have yet to meet a dental professional who does not advocate the use of magnification in clinical practice. I anticipate that I will move up in magnification as I become more accustomed to working with loupes and the complexity of my cases becomes more challenging. For those who are approaching the DF1 stage of their careers, investing in magnification may help them cope with the new pressures of working in practice and speed up your work. Ultimately, using magnification as an aid will have multifaceted benefits to your overall clinical skills and should be a serious consideration for any young dentist. **Jignesh Panchal** ■



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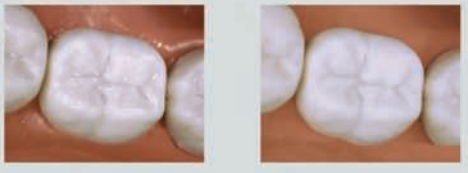
:- **Surgery**: ***reducing glare*** from instruments; especially from fluids (saliva, blood)

:- **Endodontics**: ***reducing brightness*** on the tooth surface especially at the time of opening the root canal

:- **Aesthetic dentistry**: ***to better visualise*** the translucency of tooth components (enamel, dentine) finding cracks in the enamel, caries, etc



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GOLD STANDARD

Knowing your clinical governance from your clinical audit is essential for successful job interviews, advises **Vinay Mistry**

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The expectations of representing the dental profession in the 21st century stretch beyond clinical confinements and physically treating patients. Mick Armstrong, Chair of the BDA, recently urged young dentists to be the profession's body of change, as the future is in our hands. We can make this change by not only continuously improving the quality of NHS services, but also by safeguarding high standards of care by creating an environment in which clinical excellence will flourish - this is clinical governance.

Clinical governance

The clinical governance framework is a mandatory requirement of clinical practice, but the regulator varies depending on your country of residence and whether dental care is provided under the NHS or privately:

➤ NHS/HSC provision of dental care:
- England – Care Quality Commission (CQC)
- Northern Ireland, Scotland, Wales – relevant NHS/HSC body

➤ Private dental care:
- England - CQC
- Northern Ireland – Regulation & Quality Improvement Authority (RQIA)
- Scotland – Healthcare Improvement Scotland (HIS)
- Wales - Healthcare Improvement Wales (HIW)

The infamous CQC amalgamation in 2009 of three predecessor organisations sparked panic across dental practices in England, as registration was obligatory and therefore compliance with the 28 essential standards an expectation. Of these 28 essential standards, there are 16 core outcomes, which relate to the quality and safety of patient care, with four of these at the forefront for dental care provision:

'In the hospital, monthly clinical-governance meetings are a structured and formal chance for all members of staff to discuss, share and learn from recent activities'

➤ *Outcome 1 – Respecting and involving people who use services*
- maintaining confidentiality and appropriate communication
- discussing and outlining options and treatment plan formulation
- complaints process

➤ *Outcome 4 – Care and welfare of people who use services*
- treatment plans based on full-mouth assessments
- appropriate review intervals of a patient's medical history
- patients know the staff involved with their care

➤ *Outcome 7 – Safeguarding people who use services from abuse*
- CRB checks for all clinical staff
- 'Child Protection and the Dental Team' – appropriate training for all members of the team in safeguarding children and vulnerable adults

- *Outcome 8 – Cleanliness and infection control*
  - HTM01-05 – the code of practice to prevent and control infections

The seven pillars of clinical governance

Some of you may be aware of the mystical seven pillars of clinical governance (which are often a hot topic at job interviews!). By encompassing a range of activities outlined as followed, **CAREPUS** can be your friendly acronym for life to remember these:

- **C**linical effectiveness and research
  - Taking an evidence-based approach
  - Developing and implementing protocols and guidelines (e.g. NICE guidelines)
  - Conducting research to enhance care provided

- **A**udit
  - A cycle to ensure improvements in best practice with current standards/ guidelines through data collection and analysis

- **R**isk management
  - Protocol compliance (e.g. HTM01-05)
  - Reporting incidents and managing complaints
  - Welcoming of positive and negative feedback to encourage change

- **E**ducation and training
  - CPD (lectures/seminars, peer reviews, journal clubs)
  - Postgraduate examinations and courses

- **P**atient and public involvement
  - Feedback and questionnaires ('Friends and Family Tests')
  - Involvement of PALS (Patient Advice and Liaison Service)

- **U**sing information and IT
  - Maintaining confidentiality
  - Developing computer systems/programs to improve service

- **S**taffing and staff management
  - The right people, for the right job, for the right patients (recruitment and management)
  - Performance appraisals
  - Good working conditions and environment

The aim of CAREPUS is to transform the culture, systems and ways of working for staff and patients in an encouraging manner, and ultimately to seek improvement. Quality-assurance systems are in place to consistently ensure best practice is followed by all members of the dental team.

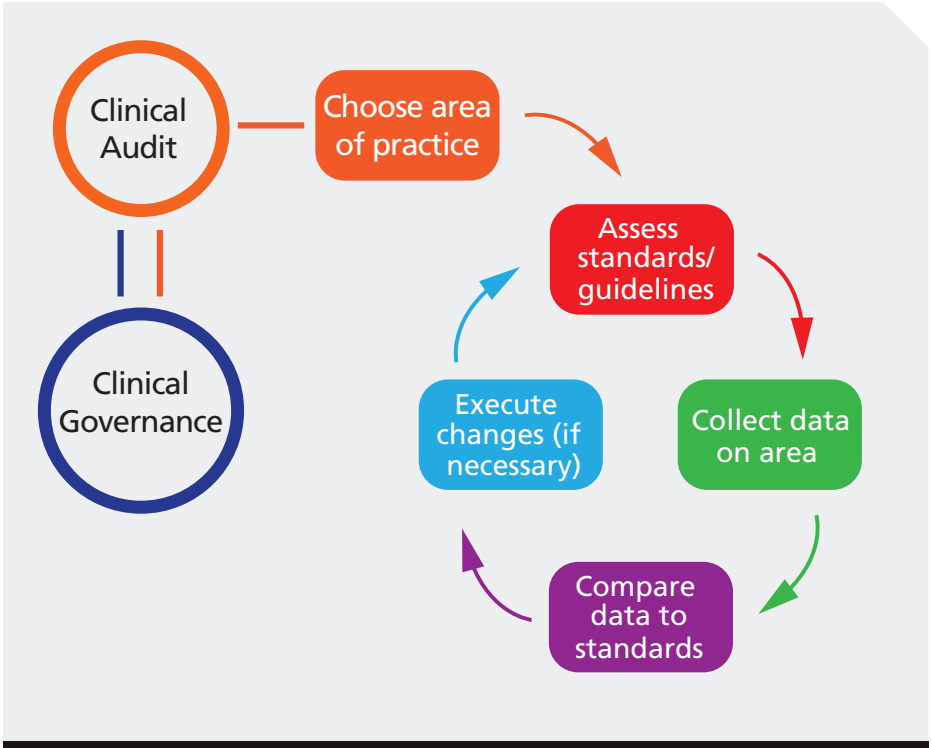

Fig 1. The clinical-audit cycle

> 'Clinical audit reviews clinical performance against agreed standards and refines clinical practice as a result'

Application in primary and secondary care

So that's all the jargon, but how does it apply to you? I currently work in primary- and secondary-care units (practice, hospital and community), and clinical governance does differ in these environments.

Most of you will be working on the frontline in primary care (dental practice), and should have most aspects of CAREPUS relayed to you from your principals, practice managers and associates without you even realising it. Monthly staff meetings, 'lunch and learn' and audits are often the mainstays of clinical-governance implementation.

Mixing this with peer review of patient cases, sharing new findings from recent teaching and self-evaluation are all important in personal and professional career development.

It is now very common for young dentists to spend some of their early years working in a secondary- care environment (the hospital or community service setting) and some choose to stay in this educational environment for specialist training. In the hospital, monthly clinical-governance meetings are a structured and formal chance for all members of staff to discuss, share and learn from recent activities such as:

- Departmental mortalities and morbidities
- Presentations of audits or completed projects and review of overall activity
- Review clinical incidents and patient experiences
- Litigation and inquest
- Risk management and patient safety
- Review of patient information, policies and documentation
- Guidelines (for example, NICE, RCS & Trust guidelines) and clinical research
- Journal club and any other business

Clinical audit

So why does everyone focus on clinical audit so much? Clinical audit reviews clinical performance against agreed standards and refines clinical practice as a result, therefore offering the greatest potential to assess the quality of care routinely provided to healthcare users.

There are other forms of audit (e.g. financial, internal, organisational) but it's important to realise these may not be clinically-based. The clinical-audit cycle can be illustrated simply as in Fig 1.

From the peak of the cycle, any clinical-care concerns can be identified through clinical governance (CAREPUS) and action implemented through clinical audit. For example, complaints may arise from patients that have recently switched dentists within a practice and have suddenly been informed they have "advanced periodontal disease", having been previously told their "gums are perfectly healthy". A clinical audit can be undertaken across all dentists in the practice to see how often BPEs are recorded and whether the appropriate treatment has been explained, documented and carried out (prevention, non-surgical periodontal therapy, optional referral to a specialist etc). The BSP (British Society of Periodontology) offers guidelines through the *Young Practitioners Guide to Periodontology* on the care expected, and data collection can begin. Based on the guidelines, changes can be implemented, with the aim of preventing further complaints from patients.

Ask yourself, what's the difference between clinical audit and research? This is a simple and typical job-interview question. Research aims to obtain new knowledge through studies and trials, inform us of the most effective practice, and influence guidelines and standards. Clinical audit assesses the quality of best practice implementation against the guidelines and standards produced by evidence-based research.

Conclusion

To some, clinical governance can sound dull and strenuous, but dentistry's more than just a job, it's your career and something to be proud of. If you're thinking of specialising in the future you'll be expected to have plenty of audits under your belt. Don't spend the next 40 years of your life 'bashing the gnash'; follow clinical governance to ensure job satisfaction, career longevity and ultimately the best dental care for your patients.

Vinay Mistry ■

LIFE AS A ORAL AND MAXILLOFACIAL SURGERY SENIOR HOUSE OFFICER (SHO)

In her first column about life as an SHO, **Charlotte Leigh**, remembers a typical ward round

My name is Charlotte Leigh and after DF1 I spent a year as a DF2 in Oral and Maxillofacial Surgery (OMFS) at Luton and Dunstable Hospital. Over the next three issues of *BDJ Student* I will explain how I survived the year as an OMFS SHO and why I recommend it to everyone. In this column, I take a look at a ward round.

Luton and Dunstable was our main 'hub' hospital and we also covered some smaller hospitals, which were QEII (Welwyn), Lister, (Stevenage), Milton Keynes and Bedford. All our night on call, weekend on call and day on call (after 5pm) were centralised at Luton and Dunstable.

08:00 – The ward round

The ward round is the beginning of the day and a chance to hear about all the patients that are under our care. All SHOs, registrars and consultants meet in the department to begin the ward round, which begins at 8am (although we have been spotted from the higher floors sprinting through the car park!). The 'night on call' SHO leads the ward round and we always try and bring them coffee and some breakfast to help get them through the last hour. The night on call prepares a handover sheet, which lists all the patients and any expected arrivals. It lists all the completed investigations and any new results and findings as well as a list of jobs that have not have been completed overnight and are outstanding.

We discuss any changes and review any updated blood-test results and images on our existing patients and any new admissions overnight. We then go to see all the patients and because they aren't always on the same ward, this involves a lot of walking!

Once we arrive at the patient's bedside the patient is examined by one of the registrars or consultants. This is also a good opportunity for the patient to ask any questions they may have been storing up. Another SHO records all of the discussion in the patient's notes; this is for medico-legal reasons and to inform the whole team looking after the patient of the 'plan'. We work with a large multidisciplinary team who cannot all be seeing the same patient at the same time, so accurate and detailed notes enable us to inform the dietitians, physiotherapists, speech and language therapists and nurses of any changes and developments. We then inform the nurse in charge of any changes to the patient's medication, any investigations that are needed or any dressings that may need to be changed.

> 'We discuss any changes and review any updated blood-test results and images on our existing patients'

The 'day on call' SHO notes down any jobs that they have to do for every patient: these include ordering special investigations, taking bloods, replacing cannulas, removing drains and preparing discharge paperwork.

The ward round can be busy if we are trying to see a lot of patients in an hour but it can also be exciting to see the patients improve and be able to tell patients they can go home. This is just the beginning!

Charlotte Leigh ■

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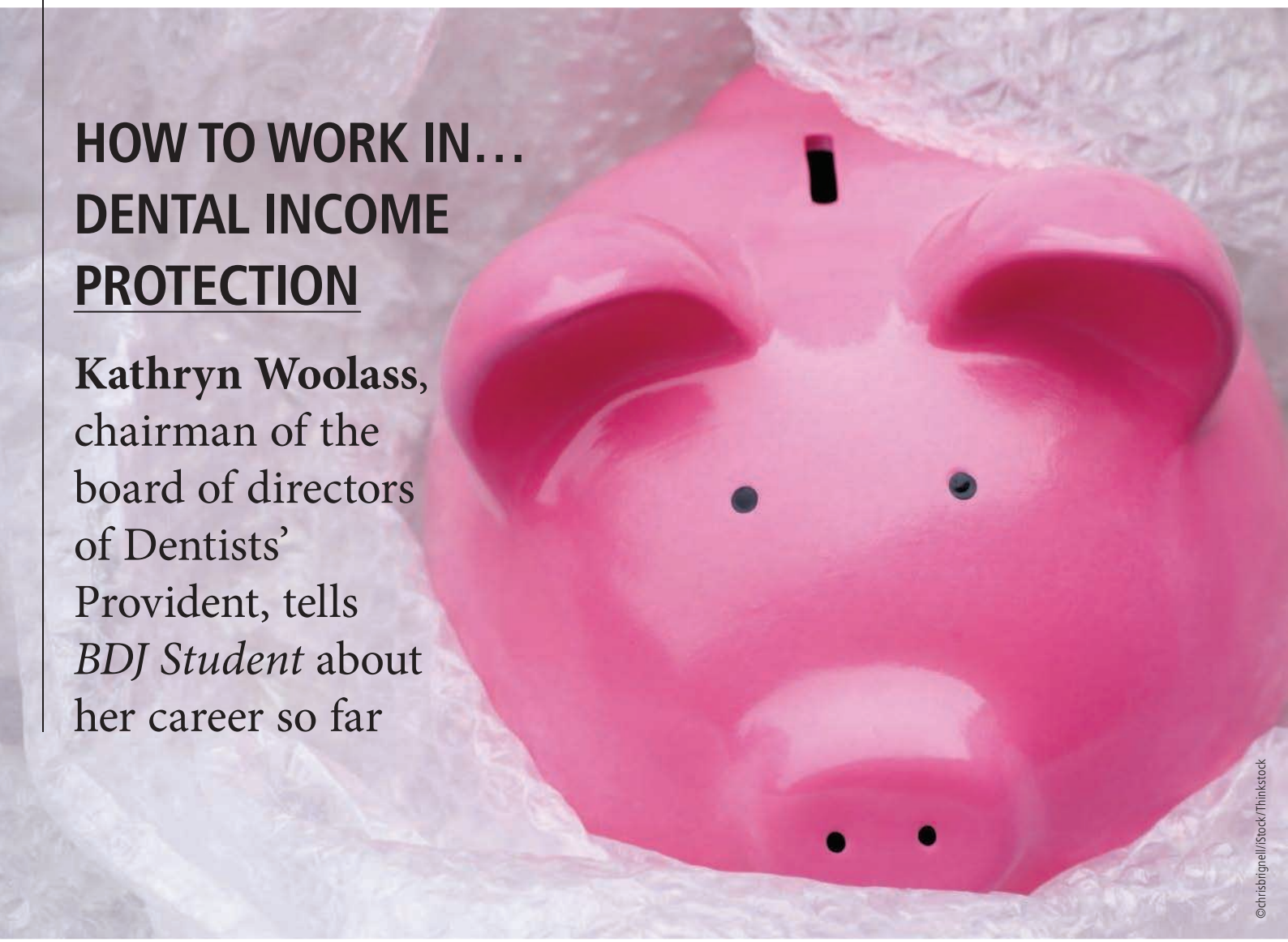
HOW TO WORK IN… DENTAL INCOME PROTECTION

Kathryn Woolass, chairman of the board of directors of Dentists' Provident, tells *BDJ Student* about her career so far



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BDJ Student: *What are the responsibilities of this role?*

Kathryn Woolass: The role of the chair of the board of directors is to lead the board in overseeing the strategy, finances, governance and risk management at Dentists' Provident. This involves building a cohesive team, promoting debate and balancing support and challenges from the rest of the board.

BS: *What do you have to do for it?*

KW: A chairman is a facilitator, counsellor, mentor, team builder and leader. It is necessary to listen to and engage with fellow board members, the operational staff and their teams and, very importantly, with our members.

BS: *How often do you have to attend meetings?*

KW: Around 15 formal meetings every year, but the job involves much more than just meetings. Communication is key and the meetings need significant preparation and follow up. This means that beyond the meetings I may be involved in telephone calls, video conferences, emails, face-to-face discussions and attending dental conferences and exhibitions to meet our current and prospective members. This role does demand a lot of time and not all of this can be pre-planned, so flexibility is important.

'We all have wobbles, and having someone there with an encouraging word at the right moment can spur us on to achieve what we have set out to do.'

BS: *What are the best aspects of the role?*

KW: The board working together as a team with the best interests of our members at the heart of our discussions and decisions. I take every opportunity to meet with our members and find out about the impact of our work. Receiving feedback, both positive and very occasionally not so positive, and acting on it, is a central part of the job and fortunately one that I enjoy.

BS: *And the worst?*

KW: I am not sure I would say I dislike any of the role but there have been challenges. Running a practice demands a basic set of financial skills, however, it was quite a learning curve on joining the Investment and Capital Management committee. Corporate investment is a very different animal to personal and small-business investment.

BS: *What advice would you give someone who is interested in being on the board one day?*

KW: Join Dentists' Provident – you need to be a member if you are looking to be on the board. And secondly get a breadth of experience within the profession. There are so many avenues and experiences out there, take the opportunities when they arise.

BS: *Do you have to be a dentist to do it?*

KW: Yes.

BS: *Where did you practice?*

KW: Until recently in Rotherham, South Yorkshire. But I have now retired from clinical practice.

BS: *What was your specialty?*

KW: Orthodontics.

BS: *Did you enjoy this work?*

KW: Very much. I have been privileged to enjoy my work, and to have met and worked with many delightful, supportive, remarkable people, and that includes the vast majority of the patients too.

BS: *How did you get into that?*

KW: I was lucky enough to know as a student that orthodontics was where I belonged. It was a matter of getting on the right pathway and passing the relevant exams.

BS: *What other professional qualifications do you have?*

KW: FDSRCS Eng, D D Orth RCPS.

BS: *What is the best piece of career advice someone has ever given you?*

KW: Professor Peter Burke was key in encouraging me onto the most efficient pathway to achieve my goal of becoming an orthodontist. At that time the first move was to gain an FDSRCS and it was the norm to achieve this through time in oral and maxillofacial surgery. While I enjoyed the experience it was a stepping stone to my ultimate goal.

'A chairman is a facilitator, counsellor, mentor, team builder and leader. It is necessary to listen to and engage with fellow board members, the operational staff and their teams and ... with our members.'

BS: *Do you have somebody you look up to in the profession or who mentored you in the past?*

KW: Professor Peter Burke and Professor Derrick Willmot were particularly supportive in my early orthodontic career. We all have wobbles, and having someone there with an encouraging word at the right moment can spur us on to achieve what we have set out to do.

I must also mention my parents. They were both dentists and long-standing members of Dentists' Provident. My mother joined in 1950 and my father, shortly after. Soon after qualifying my father suggested I join Dentists' Provident. In the excitement of starting work this got put on the back burner. However, three months after starting that first job I managed to fall off my bicycle and fracture my tibia and fibula. On realising that accidents can happen to each and every one of us, including yours truly, I joined immediately afterwards.

While there was never any pressure from either of my parents to enter a career in dentistry, the example they set as professionals obviously influenced my choice. So I owe them a huge thank you for the happy and fulfilling career I have had.

Kathryn Woolass CV

1954 – Born in Sheffield

1976 – Graduated from Liverpool

Jan – June 1977 – House Officer Liverpool Dental Hospital

July – Aug 1977 – Locum in general practice in Cheshire and locum resident Senior House Officer (SHO) Walton Hospital, Liverpool

Sept 1977 – July 1978 – Resident Oral & Maxillo-facial Surgery Senior House Officer (SHO), Northern General Hospital, Sheffield

Sept 1977 – July 1978 – Resident Oral & Maxillo-facial Surgery Registrar, Grimsby and Scunthorpe Health Districts

July 1979 – July 1980 – Registrar in Dental Surgery, Charles Clifford Dental Hospital Sheffield

June 1980 – Fellowship in Dental Surgery Royal College of Surgeons of England (FDSRCS Eng)

July 1980 – Jan 1981 – Locum Associate Specialist, Charles Clifford Dental Hospital Sheffield

Oct 1980 – July 1981 – part-time Dental Officer, Student Health Service University of Sheffield

Feb 1981 – July 1982 – General Dental Practitioner Derbyshire

Aug 1982 – July 1985 – Registrar Depart Orthodontics Charles Clifford Dental Hospital Sheffield

1982 – 1985 – Became member of the South Yorkshire Council of the British Dental Association

1982 – 1985 – Hon Sec of South Yorkshire branch of the British Society for Paediatric Dentistry

1983 – 1986 – Sheffield & District Orthodontic Study Circle

1984 – Appointed to the board of Dentists' Provident as a non-executive director

Aug 1985 – Oct 1985 – Part-time Locum Community Senior Dental Officer, North Derbyshire Health Authority

Oct 1985 – Diploma in Dental Orthopaedics Royal College of Physicians and Surgeons of Glasgow (D D Orth RCPS)

1986 – 1987 – Chair Yorkshire branch of the British Society for Paediatric Dentistry

Aug 1985 – Sept 1991 – Part-time lecturer, Depart of Orthodontics, University of Manchester

Jan 1986 – Sept 1993 – Part-time practitioner in Orthodontics

Oct 1993 – June 2015 – Principal Specialist orthodontic practice Rotherham

1990 – 2000 – Audit Facilitator Trent region

1999 – 2003 – Chair of the Rotherham Local Dental Committee

1999 – 2005 – Rotherham Oral Health Advisory Group

2002 – 2003 – Chair Trent Local Dental Committee

2002 – 2005 – Secretary of the Local Orthodontic Committee of the South Yorkshire Strategic Health Authority

2003 – 2005 – Treasurer of the Rotherham Local Dental Committee

Oct 2003 – Mar 2008 – Postgraduate Dental Tutor, Barnsley, Doncaster and Rotherham

July 2009 – May 2014 – Appointed examiner for the Royal College of Surgeons for the Diploma in Orthodontic Therapy

May 2010 – Appointed to the board of Dentists' Provident as chairman

Aug 2015 – Retired from clinical dentistry

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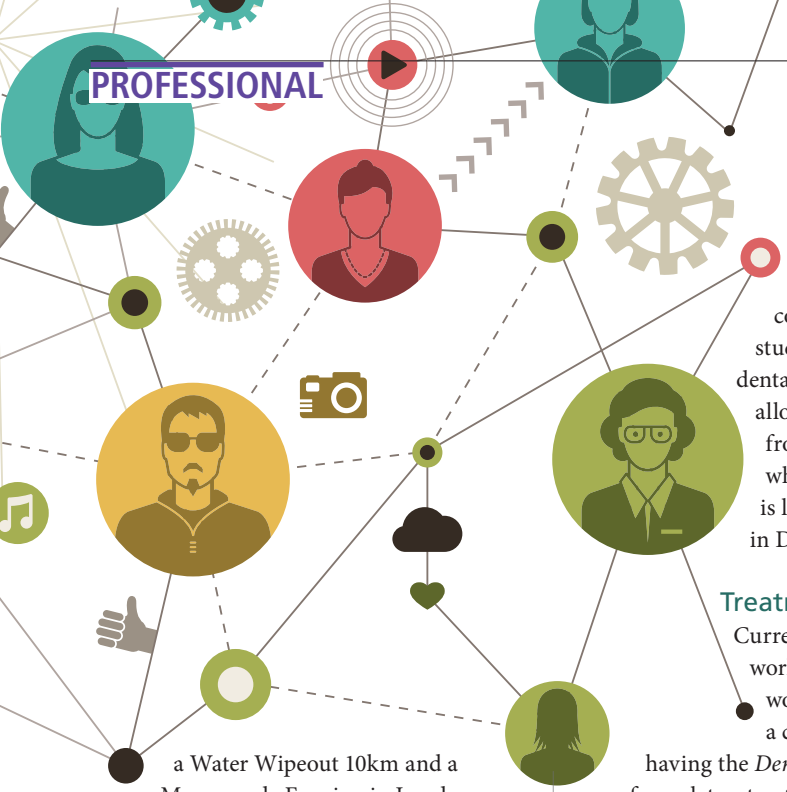
DENTAL CONNECTIONS

Jon Benton, student ambassador for Make a Dentist has been directly involved in the creation of *Dental Roots*, a social-media group for dental students. Here, he tells *BDJ Student* how it hopes to transform the way dental students connect to each other

At the beginning of April 2015, the Make a Dentist team created the *Dental Roots* Facebook group with the purpose of connecting young dentists and students to the array of specialties in the dental community. The group provides a platform for members to discuss any relevant dental topics, with each thread benefiting from the knowledge and opinions of experienced academics and clinicians in each specialty. Within two months of the group going live it had gathered over 5000 members.

Charitable projects

Dental Roots is the brainchild of the Make a Dentist charity, which was founded in 2009 to fund the education of dental students in Zimbabwe. Since then it has held a number of events including an annual CPD conference,



a Water Wipeout 10km and a Masquerade Evening in London, which together raised enough money to ship half a tonne of educational resources to Zimbabwe. Two of the founding members of Make a Dentist, Saeid Haghri and Sundeep Rooprai, also recently oversaw a project in Malawi, where they worked in a Make a Dentist camp for a week treating over 400 patients and carrying out a random dental-health survey that will be published soon.

Social-media education

Dental Roots was designed with the knowledge that most dental students in the UK regularly use Facebook and that many are keen for a more-sociable platform for our dental education. It acknowledges that methods of teaching are constantly evolving and that social media can have a large impact on education, which has enabled *Dental Roots* to gather over 5000 dental professionals to enter a peer-reviewed discussion. The group gives members the chance to ask any burning questions about anything related to dentistry and there are a number of members who regularly post on the group. Professor Kevin O'Brien has been keeping the *Dental Roots* community up to date with everything related to orthodontics since May; David Bretton seeks answers to common dental questions; and Reena Wadia shares her exceptionally useful tips to help young dentists in their everyday life, with advice ranging from dental photography to getting published.

An incredibly useful aspect of the *Dental Roots* group is that students have direct access to professionals who have worked in the field of dentistry for many years. Therefore, if you have a question about working abroad, the group offers you the chance to talk to members who have been there and done it. The *Dental Roots* community comprises students from every dental school in the UK, allowing dental students from Plymouth to ask what university life is like all the way up in Dundee.

Treatment planning

Currently, the team is working on a project that would involve posting a case on the group and having the *Dental Roots* community formulate a treatment plan. Each of these cases would be presented with a full medical and dental history, with clinical photographs and relevant radiographs. Members from the group can then share how they think this patient should be treated, from simple oral hygiene instruction, to complex surgical intervention. The group can then evaluate and discuss each of the proposed treatment plans to determine the most favourable treatment modality. Once this is decided, a member of the *Dental Roots* admin panel can then reformat the agreed plan and post it to the group for members to refer to if they come across a similar case.

'Guidelines are an essential tool to assist us in our working lives as professionals and this document was aimed at improving access to the most popular guidelines'

Dental guidelines

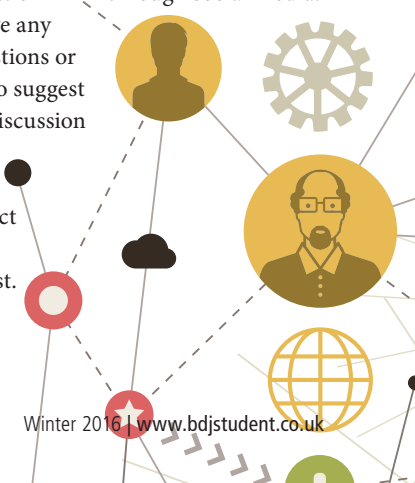
A project that I personally oversaw was the development of a document containing a selection of relevant dental guidelines for fast access to their locations online. This list is 27 of the most useful and relevant guidelines, as determined by myself and all of the contributing group members. The idea for the project was shared on the group's page and the members were asked to reply with the guidelines that they thought would be beneficial to include. Although this project was posted within the first week of the group's launch, the response was very positive and I was able to publish the completed document within a short time. Guidelines are an essential tool to help us in our working lives as professionals and this document was aimed at improving access to the most popular guidelines and ensuring that all members know which decisions should be supported by evidence-based information.

Successful candidates

Very common topics of discussion on *Dental Roots* are those concerning final years and young practising dentists. Many of these popular questions are about finals, job applications, CV writing and Dental Foundation Training (DFT) years 1 and 2 applications and interviews. In all of these cases, members of the group have direct access to others who have already successfully been through the process. Not only are there members that have applied for jobs or been interviewed for DFT1/2 posts, the group also has participants that have sat on interview panels or who own practices and have therefore spent many hours interviewing potential candidates. These knowledgeable members can then reply to your question, giving you the invaluable understanding and guidance needed to stand out in your interview.

Although *Dental Roots* has only been live for a less than a year, it has already become one of the UK's leading social-media groups for dentists. The aim going forward is to increase the ever-expanding community of professionals and improve the availability of dental education through social media.

If you have any further questions or would like to suggest a topic for discussion on *Dental Roots*, then please contact me at jon@makeadentist.com. **Jon Benton** ■



BDJ UPDATE

Stephen Hancocks OBE, Editor-in-Chief of the *BDJ*, chooses his article highlights from recent issues of this highly respected journal.

Published twice a month, the *BDJ* is the leading dental journal in the UK and is, in addition, widely read internationally. It is available in hard copy with 20,000 readers an issue (included in BDA Student Membership for 3rd, 4th and 5th year students) and online at **www.bdj.co.uk** (available to all BDA Student members) where it receives in excess of 100,000 unique visitors a month. It includes news, opinion, research, articles on dental practice and education.

BDJ continues to cover many fields

The *BDJ* aims to publish content that appeals to, and is useful to, a wide range of readers: from students to experienced practitioners, from academics to full-time clinicians as well as educators and dental care professionals. Increasingly, we are also catering to an international audience for, as well as the 20,000 print copies distributed twice a month to BDA members in the UK, we also receive over 120,000 unique visitors a month to the *BDJ* website.

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Most excitingly, as heralded in the previous issue of *BDJ Student*, on 23 October 2015, we officially launched our online-only, peer-reviewed, open-access journal, *BDJ Open*, with its first content – please check it out for free at www.nature.com/bdjopen The *BDJ* itself is now 135 years old but this new addition to the *BDJ* Portfolio will be one that you will see grow and become established during your practising lifetime, so I hope you will find it of great value.

Are you taught enough about implants?

Coming back closer to home, a recent *BDJ* paper aimed to understand the opinion of general dental practitioners (GDPs) about the current level of implant education at both undergraduate and postgraduate levels.[1] To test this, a questionnaire was sent to GDPs working in a group of practices in the West Midlands. Surveys on dental-implant education are limited and those published have focused on specific areas. For example, two surveys recorded the responses from dentists who attended continuing dental education in dental implants but the respondents were mainly established private practitioners. They considered that attending those courses made them aware of their own limitations and most of them thought there should be a dental-implantology speciality. The present literature and guidelines indicate that more information is needed on how general dentists deal with implant requests and treatment in their everyday practice.

Ninety-one out of 101 dentists responded to the questionnaires (95.6%). Sixty-seven (77%) said that they learnt only theoretical aspects of dental implants during their undergraduate training and most said that the training was not adequate. Barriers to dental-implant provision by general dentists were also identified in the survey, the main ones being risk of failures (56.3%), how to avoid complications (65.5%) and the cost of learning (51.7%). The results were correlated to the implant competences set by regulatory organisations such as General Dental Council and Association of Dental Education Europe. Worryingly, the study concluded that current implant education at both undergraduate and postgraduate levels in the UK does not instil confidence in GDPs to provide and maintain dental implants.

Thumbs up for perio

In 1980, the British Society of Periodontology (BSP) published a series of educational goals that have since guided periodontal curricula at UK dental schools. Further, a recent survey of UK dental schools evaluated aspects of teaching and learning in periodontology. The aims of this project were to identify teaching practices and assessments in periodontology and best practice that may be developed in the future. As in the implants research, a questionnaire was used but this time sent to dental schools that had participated in the previous survey.

On a positive note, the results showed that there is consistency among the education providers with respect to teaching and learning in periodontology. Most are developing integrated learning between dental undergraduates and members of the dental team although there are opportunities for further development. Students are expected to have knowledge of complex treatments but are not expected to be competent at undertaking periodontal surgery nor placing and restoring implants. In this instance, the findings confirm that there is considerable consistency among the education providers with respect to aspects of teaching and learning in periodontology. It is also pleasing that a specialist society, the BSP, has been able to influence and uphold standards in education for present and future colleagues and specialists.

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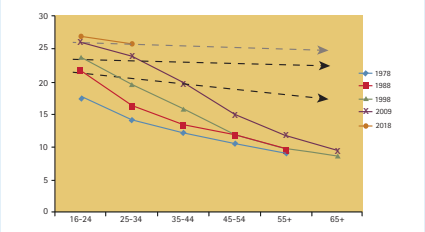
Child health reviewed

Five national surveys of children's dental health in the various UK countries have taken place between 1973 and 2013. A recent BDJ paper considered all five to summarise trends in the dental health of children in the UK over the past 40 years.[4] A total of 69,318 children, aged five-15 years, were involved and caries prevalence was shown to have been reduced from 72% to 41% in five-year-olds, and from 97% to 46% in 15-year-olds in that time. Changes in periodontal disease, orthodontic treatment, accidental damage to anterior teeth, tooth-surface loss and enamel defects are also summarised in the paper.

Caries is now concentrated in a minority of children but the prevalence of gingivitis has not changed a great deal in 40 years. About half of those children assessed "in orthodontic need" receive treatment.



Child caries falls over four decades

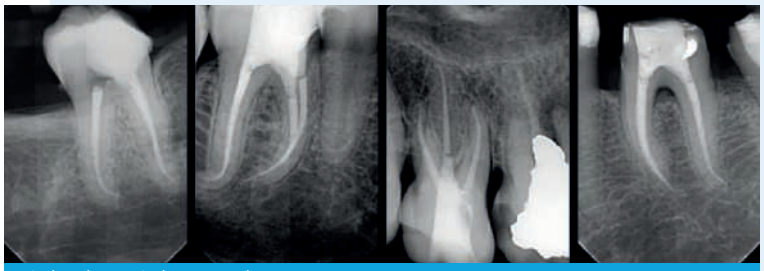
Endodontic vitality

A paper we published earlier in the year discussed the differences in performing root canal treatments on teeth with vital and non-vital pulps.[3]

When carious lesions extend into dentine an inflammatory reaction in the pulp is initiated to protect it from bacteria and their toxins. If the carious lesion is not treated, the inflammatory reaction increases in intensity to a point at which the pulp cannot recover, a state referred to as irreversible pulpitis. This is frequently associated with pain and may force the patient to seek dental treatment. The treatment of choice in this case, if the tooth is to be retained, is root canal treatment. Relief of symptoms is achieved following extirpation of the inflamed pulp tissue. However, if the situation is not treated (as commonly occurs in cases in which the inflammatory reaction is asymptomatic), the pulp becomes necrotic and eventually the root canal system becomes infected.

With time, micro-organisms and toxins penetrate the dentinal tubules but frequently there are no symptoms. By the time infection reaches the apical foramen, a protective inflammatory reaction is evident in the peri-radicular tissues slowing further progression of the microbial infection. The clinical outcome at this stage can be either acute or chronic peri-radicular disease. This depends on several factors including the virulence of the microbial infection and the host defence reaction. If the tooth is to be retained, root canal treatment is indicated. The term root canal treatment describes a procedure in which the diseased pulp remnants are removed and pulp space is enlarged and sealed. However, the objectives and technicalities of the root canal treatments performed at each of the above mentioned stages are different. For vital cases, aseptic treatment is aimed at removing the inflamed pulp and providing a fluid-tight seal. In non-vital teeth, a more rigorous antiseptic protocol is needed to rid the pulp space of its bacterial colonisation before a fluid-tight seal is provided to prevent re-infection.

Certain mechanical factors determine the apical preparation size, such as tooth type, pre-operative canal size, degree of curvature and the lengths of roots. The presence or absence of infection represents the biologic factor that determines the ideal mechanical shape. In teeth with vital pulps, minimal apical preparation with an appropriate taper is preferable to reduce the risk.



Vital and non-vital root canal treatments

That's strong!

And finally, an article looked at this in relation to supplementation products as a key component in bodybuilding.[5] These are increasingly being used by amateur weight lifters and enthusiasts to build their ideal bodies and are advertised to provide the nutrients needed to help optimise muscle building, but they can contain high amounts of sugar. Supplement users are consuming these products, while not being aware of their high sugar content, putting them at a higher risk of developing dental caries. It is important for dental professionals to recognise the increased risk for these users and to raise awareness, provide appropriate preventive advice and be knowledgeable of alternative products to help bodybuilders reach their goals, without increasing the risk of dental caries. All of which connected neatly with a piece from last year in which we highlighted the day in the life of a dentist who is also a boxer.[6] Never a dull moment in dentistry.

The boxing dentist

References

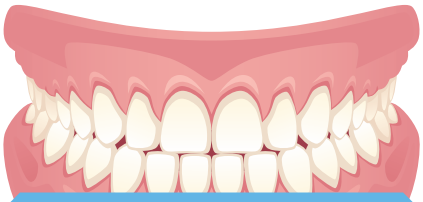
1. Jayachandran S *et al.* Maintaining dental implants - do general dental practitioners have the necessary knowledge? *Br Dent J* 2015; **219:** 25-28.
2. Heasman PA, Witter J, Preshaw PM. Periodontology in the undergraduate curriculum in UK dental schools. *Br Dent J* 2015; **219:** 29-33.
3. El-Ma'aita AM *et al.* Rethinking root canal treatment: understanding the difference between preventing and treating endodontic infection. *Br Dent J* 2015; **219:** 13-16.
4. Murray JJ, Vernazza CR, Holmes RD. Forty years of national surveys: An overview of children's dental health from 1973-2013. *Br Dent J* 2015; **219:** 281-285.
5. Ali MS, Batley H, Ahmed F. Bodybuilding supplementation and tooth decay. *Br Dent J* 2015; **219:** 35-39.
6. Quinlan K. A dentist's life. I am known as Dr. Hitman. *Br Dent J* 2014; **216:** 368.

Stephen Hancocks

BDJ IN PRACTICE UPDATE

Selected by **Graeme Jackson**, *BDJ In Practice* editor

BDJ In Practice is the BDA's membership magazine and covers a range of business-focused topics. The articles below featured in a recent issue of *BDJ In Practice*. While they are aimed at established dentists, they are also relevant to young dentists preparing for their future careers.



Why straight teeth?

Most people (over 85%) have their teeth straightened to boost their confidence, among other psychosocial reasons, a survey of orthodontic professionals has found.

Career prospects were also a key motivator. Other reasons given were an impending landmark event, all cited a wedding; and to improve personal relationships or dating prospects.

Of the 85% citing psychosocial issues, 42% hoped to improve their confidence and overcome shyness; almost 50% wanted to be able to smile more in photographs; and 9% wanted to smile without a hand in front of their mouths. A smaller group (3%) said their treatment was to tackle bullying and teasing.

Of people seeking treatment to boost their career prospects, 41% were looking to be taken more seriously in a professional working environment, while 36% wanted to perform better in the boardroom or during corporate presentations. One-fifth hoped that a corrected smile would help them to get a new job.

Compelling personal reasons driving orthodontic treatment include 73% doing so to improve their chances of appealing to a significant other and 22% hoping to attract a new partner after divorce or a relationship split. With a nod to the increasing significance of social media in relationships, 8% hoped to improve their chances of attracting a date through sites such as Tinder.

The aim of the survey of its 20 member practices by The Invisible Orthodontic Group was to gain a deeper understanding of the motivations driving adults to seek straightening so they could develop treatment plans.

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Trust rewards with good behaviour

Practices that have a high-trust, high-integrity workplace are less likely to have staff who behave badly, research suggests.

The Institute of Leadership & Management (ILM) The truth about trust survey of over 1600 managers found that almost three-quarters (72%) had witnessed employees lying to cover their mistakes, cutting corners, and delivering substandard work. A further 68% had seen people badmouthing team members behind their backs.

> 'Organisations with a clear set of values were up to 11% less likely to experience unethical behaviour.'

Other common examples of dishonest behaviour included passing the buck for poor performance (67%), slacking off when no one is watching (64%) and taking the credit for other people's work (57%).

ILM chief executive officer Charles Elvin said: "At a time when organisations are bending over backwards to demonstrate their ethical credentials, we were surprised to see just how endemic some of these bad behaviours are in the workplace. Even relatively minor misdemeanours, if left unchecked, can poison a workplace culture and bring down trust and ethical standards across the workforce."

The research highlighted the importance of setting clear ethical guidelines for staff because bad or unethical behaviour was significantly lower in organisations that had a statement of ethical values.

Organisations with a clear set of values were up to 11% less likely to experience unethical behaviour.

"While it's important to deal with individual examples of bad behaviour, it's also crucial to understand the root cause," Charles Elvin said.

Top 10 bad behaviours

Cutting corners – 72%

Lying to hide your mistakes – 72%

Badmouthing colleagues – 68%

Passing the buck (when you don't get your work done) – 67%

Slacking off when no one's watching – 64%

Lying to hide other people's mistakes – 63%

Taking credit for other people's work – 57%

Taking a sickie – 56%

Lying about skills and experience – 54%

Taking low-value items from work – 52%

"If people are covering-up their mistakes, is this a sign of a blame culture that leaves people afraid to be honest? If people are routinely phoning in sick, is there an underpinning issue with stress and workload? In many cases these behaviours are symptomatic of wider cultural issues which, once uncovered, can be effectively addressed to improve morale and organisational performance and ultimately help to avert crises and better equip businesses for the future."

Graeme Jackson

BDJ TEAM UPDATE

By **David Westgarth**, *BDJ Team* editor

BDJ Team is aimed at dental care professionals (DCPs) and is published online only. In 2015, it will be published every month except August and December. To fulfil its goal of informing, educating and entertaining DCPs, *BDJ Team* provides one hour of verifiable continuing professional development (CPD) in each issue.

A whiter future

In July 2015 we heard from the co-ordinator of the Tooth Whitening Information Group (TWIG), Karen Coates, who provided an update on the latest developments surrounding the ever-evolving battle against illegal tooth whiteners.

In the article, Karen explained how the group will look towards educating the public that the efficacy of non-verifiable products purchased online cannot be guaranteed and the very high percentage of hydrogen peroxide is potentially harmful to the teeth and gums. Controlling tooth whitening outside the UK remains akin to herding cats – as soon as one website is closed down, another is opened and so on. Karen said: "If we can provide this information and the warnings about these illegal products perhaps we can reduce the demand and protect the public this way. To this end we are preparing articles for the 'lifestyle' type magazines, explaining about how to safely improve the appearance of your teeth and the laws surrounding tooth whitening."

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Jamie's Sugar Rush – friend or foe?

Moving into September, Jamie's Sugar Rush shocked the nation into action, with his petition to introduce a sugary-drinks tax reaching 100,000 signatures within 48 hours of the documentary airing. On the back of this, *BDJ Team* asked: What did we as a profession make of it? After all, the *British Dental Journal* has been drawing attention to the health risks of sugar for 100 years, so what impact could a 60-minute show by a TV chef possibly have?

Photograph: © Channel 4

Jamie Oliver in his latest documentary, Jamie's Sugar Rush

Five members of the healthcare profession told us exactly what they thought. Shaun Howe wanted to know why it needed Jamie Oliver to highlight a message that we all know and have been passing on to patients for some time. He said: "I am angry that it has taken a TV chef to bring this to the nation's attention; the Scientific Advisory Committee on Nutrition made some startling revelations in its recently published SACN Carbohydrates and Health Report."

Dominique Tillen welcomed the idea of the sugar tax, citing it as a positive step to tackle preventable childhood tooth decay. Claire Stevens believed it could have been a little bit more balanced, saying that: "A sugar tax alone is not the answer to improving oral health, but there was no mention of key preventive messages recommended by paediatric dentists, nor mention of fluoride nor discussion of the fact that it is not just what we eat but also when and how often we eat that will determine caries risk."

Dr Judith Husband believes that we have to "kick-start the dramatic shift in attitudes and behaviour needed to prevent the current tidal wave of sugar-related disease and disability that we face today", and associate nutritionist Alexis Poole thought the programme was a small step towards tackling an enormous health issue.

Cancer catchers

In October's issue, the second part of Linda Douglas' expertise on making oral-cancer screening a routine part of your patient care provides core CPD.

With Mouth Cancer Action Month taking place every year in November, Linda talked us through the need for increased oral-cancer awareness, the characteristics of a good visual examination and a number of tools out there to make the job easier. In it she wrote: "Oral cancer is the world's sixth most common malignancy and has one of the lowest survival rates, often due to late diagnosis. Most oral cancers are preceded by precancerous lesions and early cancers that can be identified by visual inspection of the oral cavity. Oral cancer is therefore potentially amenable to primary and secondary prevention."

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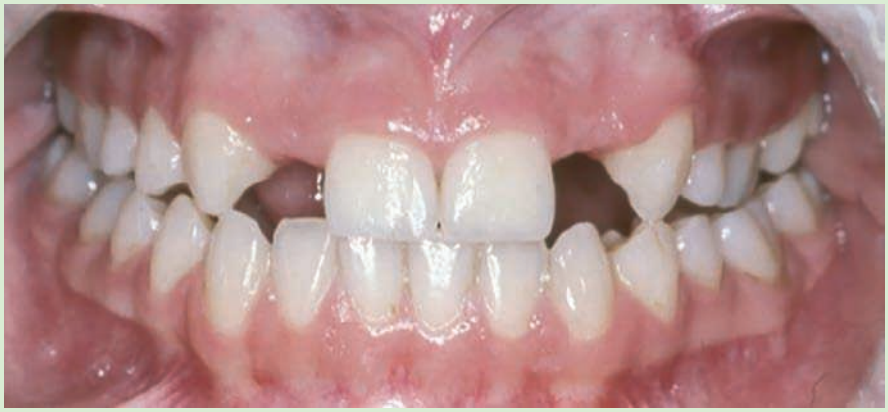
David Westgarth

Question 1

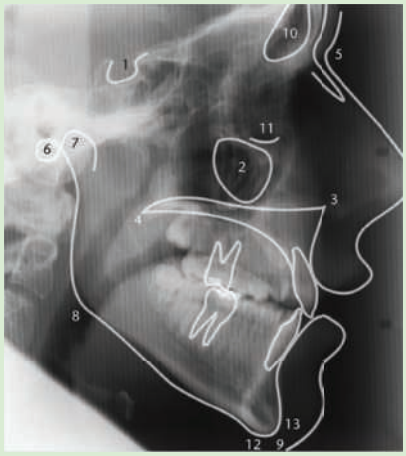


An 18-year-old male patient presents at your surgery with the above dentition.

A. What appearance is shown in the photograph?

B. What are the possible causes?

Question 2



Please identify the labelled structures on the radiograph above.

Question 3

Dental caries are commonly misdiagnosed on radiographic interpretation owing to which one of the following?

A. Full veneer crowns

B. Dental plaque or calculus

C. Cervical burnout

D. Composite restorations

E. Root caries

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REVISION

Test your knowledge with the following questions from **PasTest**

Answers are on page 37

Question 4

In which condition are Roth spots, Splinter haemorrhages, Osler's nodes and Janeway's lesions seen?

A. Infective endocarditis

B. Osteoarthritis

C. Rheumatoid arthritis

D. Type 1 diabetes mellitus

E. Type 2 diabetes mellitus

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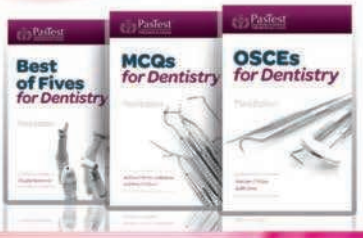

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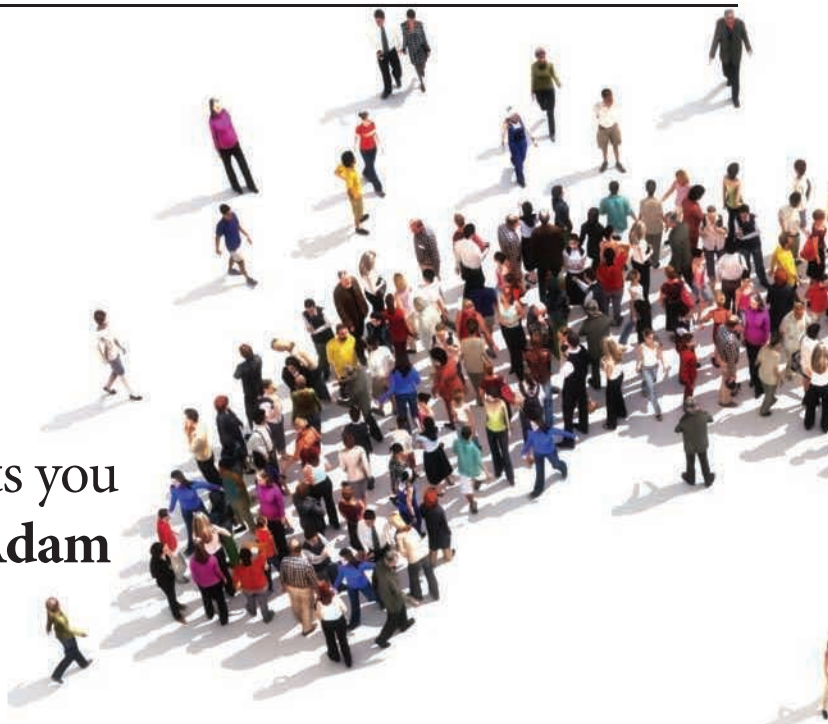
QUESTION CLINIC

BDJ Student's new column lets you ask the questions. Here, **Dr Adam Patel** answers the questions put to him by *BDJ Student's* student editor, **Anish Patel**



Question: *For those interested in possibly completing an MSc in Implantology, such as yourself, what advice would you offer to help them to prepare?*

Answer: First, to anyone considering studying an MSc, kudos to you. It is without doubt a sign of commitment to lifelong learning and shows a desire to achieve the pinnacle of evidence-based standards in your chosen discipline. A word of caution (to the few) who may consider an MSc in Implantology under the impression that it's "where the money is", I can promise you your income will eventually rank below professional satisfaction, happiness and career fulfilment.

'I make no bones, your MSc years will be some of the most testing of your life, but ultimately worthwhile and fulfilling.'

If you are genuinely intent on committing to a career in implantology (or any other discipline, as the advice still rings true) then proceed with a Master's degree. Once you have set your heart on your career path, strategically plan your next five years to maximise efficiency and enable you to garner all the benefits of your MSc. Remember, it is expensive, time consuming and can often heap very challenging amounts of pressure onto your daily life.

Still interested? Okay, this means your interest is genuine. Remember, nothing worth having in life ever came easily. For you to truly achieve the gold standard within a discipline, to nurture the ability to comprehend and dissect evidence, to put into perspective the gravitas of one piece of evidence over another and to avoid falling victim to marketing ploys and smart sales, literature bias or selective data, an MSc will arm you with the necessary skill-set.

Spend time considering and researching the following factors prior to selecting the best course for you:

- Find a course that suits you and your requirements. We are all different, and certain course structures will suit some individuals more than others.
- Research all of the MScs available in implantology, as there are several MSc courses available around the country. Contact the universities, speak to course leads and get in touch with former alumni.
- Ensure your practice setting is amenable to you practicing what you learn during your course. I would strongly advise you to invest in the necessary equipment, so you are practically able to do this.

It is indeed a long and arduous journey requiring the highest level of commitment and motivation. I make no bones, your MSc years will be some of the most testing of your life, but ultimately worthwhile and fulfilling. If you want to set yourself apart from the rest, in a continuously evolving and progressing discipline such as implantology, then achieving the highest academic qualification available is the only way forward.

For those readers who would like further details regarding an MSc in Implantology please get in touch with Dr Adam Patel who is happy to advise you on specific needs.

Question: *What postgraduate courses do you think would be of most use to young dentists interested in restorative/cosmetic dentistry after graduation?*

Answer: There is a plethora of courses out there. Again, choose the course that will meet your own personal requirements. I would avoid short (weekend) courses, especially in the early years where you are seeking a solid restorative foundation. I would advise a bare minimum of a one-year restorative course with a well-established clinician and course structure. Following exposure to a deeper understanding of restorative dentistry, you will begin to develop a passion for an area of cosmetic dentistry and you can further enhance these skills with more-specific courses.

Firstly, nurture a sound restorative knowledge base and set of skills. Begin by practicing 'bread and butter' dentistry whilst sharpening your skills. Commit to a postgraduate course in restorative and once you are comfortable, and have gained experience of all restorative treatment modalities and given yourself sufficient time to critique your own work, then further your scope into cosmetics.

Your rate of progression will depend on your clinical environment, patient base and exposure to various restorative cases. Remember, there is no need for haste - everyone must learn to walk before they can run - don't be influenced by what others are doing. You are your own person, you know yourself better than anyone and therefore you will know when you are ready. Always ensure your motive remains pure and with it you will reap untold success.

I personally spent a year with Professor Paul Tipton on his restorative course observing and learning all that I could about restorative dentistry. I would always endeavour to go above and beyond the scope of what was required during the course to maximise what I would take away from it.

'A final piece of advice is that it is imperative to have a stable knowledge base of all the disciplines within dentistry as they are employed in tandem, prior to moving onto cosmetics.'

The course helped to fine-tune my skills in areas of restorative excellence that I enjoyed and wanted to gain a deeper understanding of. I would advise everyone to follow a similar path.

A final piece of advice is that it is imperative to have a stable knowledge base of all the disciplines within dentistry as they are employed in tandem, prior to moving onto cosmetics. And if a course tutor tells you anything different, then that's probably not the course to develop you into a thoroughbred clinician. **Dr Adam Patel** ■

Dr Adam Patel has kindly offered to advise and support students interested in post-graduate training. He is contactable through www.dental-excellenceuk.com or by email at dr.adam@live.co.uk.

Do you have a question for Dr Adam Patel? Email it to bdjstudent@bda.org and we shall try to answer them in the next issue.

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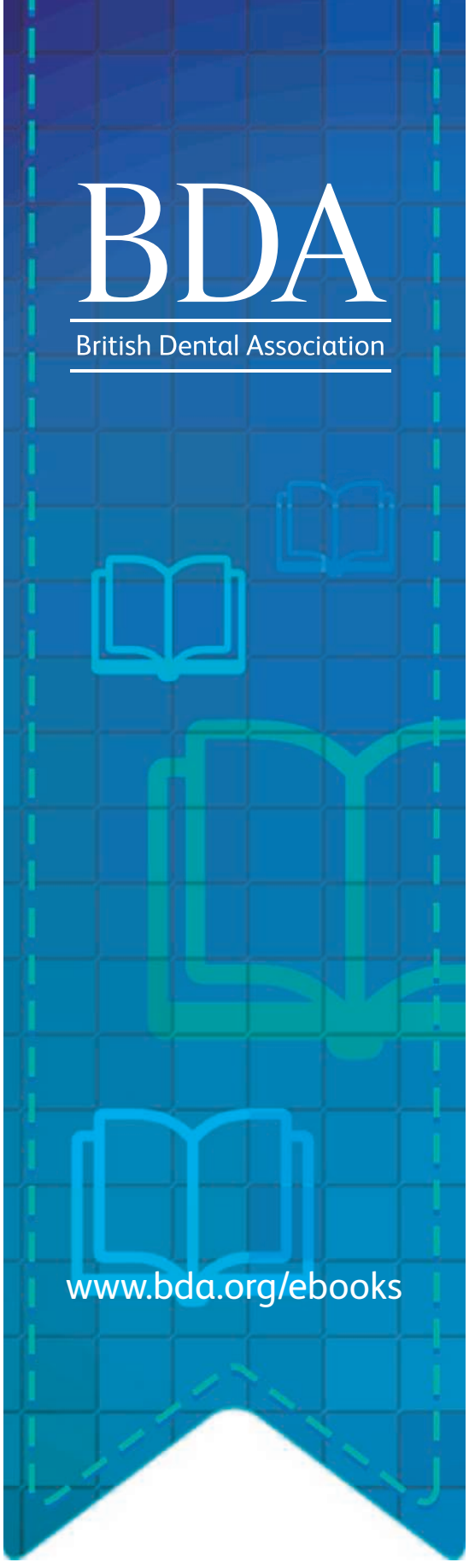


*Source: National Union of Students, 2012/13:
http://www.nus.org.uk/en/advice/money-and-funding/info-and-advice/average-costs-of-living-and-study

Question 1

An 18-year-old male patient presents at your surgery with the above dentition.

A. What appearance is shown in the photograph?

B. What are the possible causes?

ANSWER

A. The patient has missing upper lateral incisors and a non-coincident dental centre line. They have a reduced overbite and reduced overjet, and features of Class III in the buccal segments.

B. Causes of missing incisors:

- Developmentally absent
- Previously extracted
- Avulsed (unlikely as bilateral)
- Dilacerated/displaced due to trauma (unlikely as bilateral)
- Supernumerary teeth preventing eruption
- Crowding – insufficient space
- Presence of a pathological lesion

Question 3

Dental caries are commonly misdiagnosed on radiographic interpretation owing to which one of the following?

A. Full veneer crowns

B. Dental plaque or calculus

C. Cervical burnout

D. Composite restorations

E. Root caries

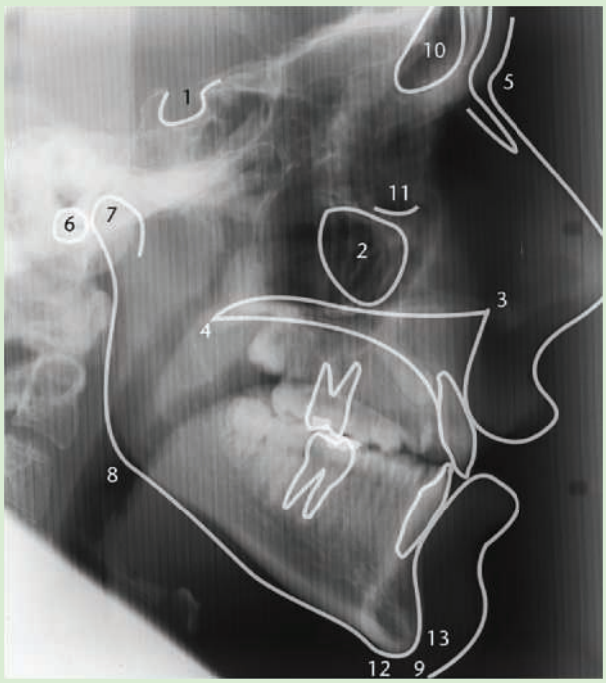
ANSWER

C. Dental-caries diagnosis on radiographs is not always straightforward owing to two additional radiographic shadows: the radiolucent cervical burnout/translucency and the radiopaque zone beneath amalgam restorations. Cervical burnout is a radiolucent shadow often evident at the neck of teeth. It is an artifactual phenomenon created by the anatomy of the teeth and the variable penetration of the x-ray beam.

Question 2

Please identify the labelled structures on the radiograph.

ANSWER



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1. Sella turcica
2. Maxillary tantrum
3. Anterior nasal spine
4. Posterior nasal spine
5. Nasion
6. External auditory meatus
7. Condyle
8. Gonion
9. Agnation
10. Frontal sinus
11. Infra-orbital rim
12. Menton
13. Pogonion

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REVISION

Answers for revision questions from PasTest

Questions are on page 33

Question 4

In which condition are Roth spots, Splinter haemorrhages, Osler's nodes and Janeway's lesions seen?

A. Infective endocarditis

B. Osteoarthritis

C. Rheumatoid arthritis

D. Type 1 diabetes mellitus

E. Type 2 diabetes mellitus

ANSWER

A. Infective endocarditis:

- Splinter haemorrhages are dark red linear lesions in the nail beds
- Osler's nodes are tender subcutaneous nodules usually found on the distal pads of the digits
- Janeway's lesions are non-tender maculae on the palms and soles
- Roth spots are retinal haemorrhages with small, clear centres. They are rare, being observed in only 5% of patients

HOW TO: PREPARE FOR CLINICAL PRACTICE

In the first of a series on preparing for practice, **Mike Young** discusses the transition from student to dentist

The transition from student to qualified dentist need not be too painful if you are willing to focus on certain key skills while you are still 'practising' within the cosseted world of the dental school. In this article I have set out some hints and tips that are going to help make the transition from student to dentist as smooth as possible when you do eventually step out into the big wide world of clinical practice.

1 Competency

It is a given that your clinical knowledge and ability are of the highest standard. If there is anything, no matter how small or apparently trivial, that you do not understand, ask the appropriate person to explain it to you. It is not just about knowing *how* to do it, it is knowing *why* something is done. You need a deep understanding of everything. Don't be afraid to ask your colleagues for advice once you are in practice: people will not think any less of you, but they will if you don't ask and then make a mistake.

At dental school, be methodical with your history taking, your clinical examinations and treatment planning. There are no shortcuts to being a good dentist.

Dr Mike Young CV

1953 Born in Newcastle upon Tyne

1978 Graduate Newcastle University

1978 -2003 Associate, Practice Principal, MSc University of London, Clinical teacher, Expert witness, Writer

2010 Author of *Managing a dental practice the Genghis Khan way* published by Radcliffe Publishing

2013 Author of *Developing your dental team's management skills the Genghis Khan way* published by Radcliffe Publishing. Contributor to *Messages from Dental Masters 2 – How to enjoy and thrive in your dental career* published by SNH Publishing

2014 Author of *The effective and efficient clinical negligence expert witness* published by Otmoor Publishing

2015 Contributor to *Civil Litigation Practice: An expert guide* published by Solicitors Journal

2 Know your limitations

You can't, however, be brilliant at everything. Knowing your limitations is crucial, and knowing when to refer a patient is something you should be thinking about. Once in practice, the best advice is to ask yourself:

- Am I competent to provide the treatment I know this patient needs?
- Is the patient making demands upon my clinical judgement and pushing me to provide treatment that I am not sure is in their best interests?
- Am I able to solve this patient's problems?
- When something has gone wrong, am I capable of putting it right?
- Are the patient and I getting on? Do they trust my advice and my judgement?
- When in practice, don't be pressured by the principal into doing any treatment with which you are not comfortable.

3 Building relationships

Dental school is the best place to develop your communication skills, which is an essential part of being a good dentist. Dentistry is a team effort, so learn how to communicate effectively with anyone and everyone in that team. Don't forget about the patient: what you say and how you say it matters.

Dentistry has its own lexicon, which you will inevitably acquire. However, once in practice, you will spend most of your time explaining the whys and wherefores of what you are going to do to people who don't speak dentalese. You should, therefore, try explaining treatments to non-dentists using non-dental language. This is all part of developing your communication skills.

4 Time management

Time is of the essence in practice, whether it's within the National Health Service or private. As you gain clinical experience at dental school, begin to give some thought to how you could work a little faster (without compromising the final outcome). Practice owners will expect you to work in a way that gets the job done in the shortest time possible.

5 Financial management

Money goes hand-in-hand with clinical practice, both in running the business and your own finances. While you might start out on a salary, you might at some point be self-employed and therefore have to think about taxation. It is never too early to start to unravel the mysteries of financial management. However, remember that if you put profit before patients, you soon won't have any patients.

6 Get organised

It has been said that a tidy desk is the sign of tidy mind: working in chaos may, so some people think, stimulate creativity. For now I would err on the side of tidy. As a student, being organised day to day means knowing where you have to be at a certain time, what you need at different times, meeting deadlines, and turning up on time to treat your patients. Multiply that by ten and you have clinical practice. Patients and principals alike will not tolerate disorganised conduct.

7 Professionalism

Professionalism is the overarching quality of what you are and what you do. Your degree not only signifies your ability, but also is also a rite of passage into an exclusive club with its own set of rules and regulations, and its written and unwritten codes of conduct. As well as cultivating your mind, cultivate your persona so that you look and act the part of a professional, both inside and outside of work.

Dental school should not only be where you learn the mechanics of dentistry: it is also where you begin to develop the habits of someone in whom patients can put their trust. Use your time wisely to learn as much as you can before you step into clinical practice. If I had to summarise my advice it would be: stop, look, and listen. **Mike Young** ■

BODYBUILDING SUPPLEMENTATION AND TOOTH DECAY

IN BRIEF

- Raises awareness of the increasing consumption of bodybuilding supplements amongst amateur competitors/enthusiasts.
- Describes which supplements might be consumed and their sugar content.
- Discusses how dental professionals can help recognise patients at an increased risk of developing dental caries and provides advice on how to better manage them.

M. S. Ali,*[1] H. Batley[2] and F. Ahmed[3]

Supplementation is a key component in bodybuilding and is increasingly being used by amateur weight lifters and enthusiasts to build their ideal bodies. Bodybuilding supplements are advertised to provide nutrients needed to help optimise muscle building but they can contain high amounts of sugar. Supplement users are consuming these products, while not being aware of their high sugar content, putting them at a higher risk of developing dental caries. It is important for dental professionals to recognise the increased risk for supplement users and to raise awareness, provide appropriate preventative advice and be knowledgeable of alternative products to help bodybuilders reach their goals, without increasing the risk of dental caries.

Introduction

Body image and self-consciousness are common advertising targets, with sexual imagery being used in 20% of advertisements in magazines such as *Cosmopolitan*, *Redbook* and *Esquire*.[1] The world of bodybuilding and fitness has followed this trend, with magazines such as *Men's health*, *Men's fitness*, *Flex* magazine, and Muscle and fitness selling almost 300,000 copies in the first half of 2014 in the UK.[2] These magazines are full of models with idealised bodies constantly feeding into the thinking that this is how we should want to look; then, on the following page there will be an advertisement by a sponsor promoting their muscle building supplement to help you achieve that look, thereby changing the readers' self-concept and lowering their self-esteem.[3]

The global sport nutrition industry was worth £3 billion in 2009, grew to £4.9 billion in 2012 and is estimated to rise to £8 billion by 2017.[4,5] This highly lucrative industry boasts hundreds of products all of which are advertised to help the reader achieve the body they always wanted. Products categories include all-in-ones, amino acids, creatine, energy and endurance, isotonic and hydration, meal support, meal replacements, nitric oxide, post-workout shakes, pre-workout, protein and protein bars all of which offer ample individual products.[6] Supplements such as whey protein, creatine, beta-alanine and branched chain amino acids can be taken alongside daily nutrition, resistance training and cardiovascular training to help increase muscle size, strength and recovery.[7,8]

'Supplements such as whey protein, creatine, beta-alanine and branched chain amino acids can be taken alongside daily nutrition, resistance training and cardiovascular training'

Supplements: consumption patterns and mechanism

To optimise muscle hypertrophy and strength, weight lifters need to consume 1.4–2.0 g of protein per kilogram and 44–50 kcal per kilogram of bodyweight daily.[9,10] This means a person weighing 75 kg would need to consume up to 150 g of protein to optimise muscle gains. Some authors have even suggested protein consumption ranges of 2.3–3.1 g/kg of lean body weight for leaner bodybuilders who are in a calorific deficit, such as those getting ready to compete.[11] This large amount of protein can be accounted for by the consumption of protein from a variety of dietary sources including animal and plant proteins as well as supplements.[12] Nutritional supplements containing carbohydrates, protein, vitamins and minerals are used in a variety of sporting fields to boost athlete's recommended daily allowance of nutrients, as well as to boost performance.[13]

Supplements are easy to take pre-, intra and post-exercise/resistance training and this maybe the reason for their widespread use. Supplements can help increase endurance, for example during endurance training, glycogen is gradually depleted making it more difficult to continue, consuming a carbohydrate supplement can help improve endurance as well as helping to replenish glycogen stores which can aid recovery.[13,14] Resistance training has an anabolic effect on skeletal muscle and thus stimulates muscle protein synthesis; however, at the same time it also further stimulates protein breakdown resulting in an overall negative protein balance.[15,16] By consuming nutrients, specifically high quality protein which is rich in essential amino acids, the balance

[1]Bradford District Care Trust, Kensington St. Health Centre, Whitefield Place, Bradford, BD8 9LB; [2]StR in Orthodontics, Glasgow Dental Hospital; [3]StR in Ortho- dontics, University of Manchester Dental Hospital

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Email: Mohammedali_786_@hotmail.com

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Supplementation is increasingly being used by amateur weight lifters

shifts in favour of muscle protein synthesis due to the increase of amino acid availability and the overall positive protein balance.[17]

Protein supplements

Whey protein is a good example of a high quality protein source as it contains high levels of essential and branch chain amino acids. It is quickly digested and, due to its excellent bioavailability, elicits a rapid increase in plasma amino acids leading to rapid protein synthesis.[18,19] Alongside whey protein the other most popular protein supplement is casein, which also has a full amino acid profile and stimulates muscle protein synthesis. However, casein is more slowly digested and absorbed leading to a more moderate and prolonged increase in plasma amino acids.[19] Between the two, whey protein has been found to stimulate muscle protein synthesis to a greater degree than casein.[18] Protein supplementation before and after resistance training has been shown to stimulate and increase muscle protein synthesis.[20-22].

Carbohydrate supplements

Carbohydrate are consumed near to or during training periods to reduce muscle protein breakdown and increase muscle protein synthesis.[23] When taken with protein, fast acting carbohydrates such as maltodextrin, glucose and dextrose can accelerate muscle protein synthesis through the action of insulin which has known anabolic and anticatabolic properties.[24-26] Carbohydrate supplementation before and during high volume training can also help maintain muscle glycogen levels leading to better performance as well as quicker recovery due to enhanced re-synthesis of muscle glycogen.[27]

However, this is an issue of contention with some studies disputing the muscle hypertrophy benefits of carbohydrate consumption during or around training. Figueiredo *et al*. have reviewed the evidence supporting carbohydrate supplementation in addition to protein supplementation after resistance training for the specific purpose of increasing muscle mass.[28] They found one study citing supportive data from in vitro cell culture models where it was possible to exclude insulin entirely. Therefore, the results were not necessarily transferable to in vivo conditions without consideration of the differences.[28] The authors agreed that insulin was needed to increase protein synthesis when amino acid delivery was increased but that even very low levels of insulin were able to work with leucine (an amino acid which has the greatest influence on protein synthesis) to enable protein synthesis. They also mentioned that leucine itself had the ability to stimulate insulin secretion and that most of the studies on protein supplementation also reported a marked increase in insulin levels after ingestion.[29,30]

‘Alongside whey protein the other most popular protein supplement is casein, which also has a full amino acid profile and stimulates muscle protein synthesis.’

Staples *et al*.[31] found that the addition of 50 g of maltodextrin to 25 g of whey isolate did not increase the muscle protein balance post exercise. Therefore, the benefit of carbohydrate supplementation for the purpose of muscle hypertrophy around resistance training appears to be a very grey area, which currently lacks the necessary data to make evidence-based recommendations. It is certainly of greater importance for endurance rather than strength and muscle hypertrophy goals.[32]

Pre-workout supplements

Pre-workout supplements is a new category of sports supplements which have been developed to optimise nutrient delivery before exercise/training.[33] Pre-workout supplements are not only used by bodybuilders but also by athletes and strength competitors with the aim of increasing energy availability, promote vasodilation and positively affect exercise capacity.[33,34] They are made up of a combination of ingredients which can include stimulants (eg caffeine), energy-producing agents (eg creatine), agents that act as hydrogen ion buffers (eg beta-alanine), protein recovery nutrients (eg amino acids), antioxidants, nitric oxide precursors (eg arginine) and energy boosters (eg citrulline malate).[34,35] Caffeine which perhaps is the most commonly consumed pre-workout stimulant by bodybuilders has been shown to support an improvement in strength and endurance training, alongside creatine which has also been shown to improve high intensity training performance.[36,37]

Indeed, individual ingredients have a beneficial effect when taken in the correct dosages but most consumer products contain a combination of ingredients at low ineffective dosages.[34] For example, nitricoxide-based, pre-workout supplements have been developed and claim to promote vasodilation and increased blood flow due to the increase in nitric oxide following the intake of L-arginine.[38] L-arginine is indeed the precursor to nitric oxide biosynthesis

which in turn is associated with increased vasodilation; however, most of the evidence from which this rationale is based is in relation to using intravenous L-arginine at much higher doses and not oral L-arginine at much lower doses which is often found in pre-workout products and has no effect on vasodilation/enhanced blood flow.[39-41] Some companies who develop and market pre-workout supplements even claim that a single use of their product will give the consumer a muscle 'pump' which is completely unsubstantiated.[34]

Sugar content

Glucose syrup, high fructose corn syrup, fructose, dextrose and maltodextrin are an example of the sugars found in bodybuilding supplements especially weight gainers and intra work carbohydrate drinks such as High5 energy source (16 g sugar and15 g fructose per serving), Mutant mass (34 g sugar per serving), USN muscle fuel anabolic (7.5 g sugar per serving), XL nutrition xtra protein & carbs (7.7 g sugar per serving), Optimum nutrition serious mass (21.3 g sugar per serving), Vyomax nutrition maxi carb energy drinks (27.5 g sugar per 500 ml bottle).[6,42] It is the sugars found in supplements which are of interest in this paper as consumers of these supplements, in pursuit of the advertised 'ideal body' can put themselves at an increased risk of dental caries.[43-45] The focus of this article is to describe the use of dietary supplements, their effect on dental health and to raise awareness to general dental practitioners (GDPs) and dental care professionals (DCPs).

Supplements and sugar content

In the preceding section of this paper, some of the evidence for bodybuilding supplementation and the timing of its consumption has been discussed. However, in reality it is not certain how many of the consumers of these supplements are actually aware or know about the evidence behind the claims made about supplements or the validity of these claims. Perhaps, these consumers are more likely to access bodybuilding supplement websites and view their 'evidence' or recommendations while they decide which products they wish to purchase.

The following are some of the recommendations made by a popular website[46] regarding supplement choice and timing. It's important to note that the regimen of supplementation can change and is not the same for everyone, some consumers supplement more or less than others and this can be dependent on their budget, convenience or simply, their preference.

Table 1 Table showing the sugar content of supplements around a typical workout day[6,42]

Product	Type	Sugar content (per serving)	Timing and no. of servings
Sci MX Whey Protein	Whey protein	4.9 g	Breakfast (1) and pre-workout (1)
Muscle Cell Tech Performance Series	Flavoured creatine	14.0 g	Post-work out (2)
MusclePharm Assault	Pre-Workout	2.0 g	Pre-workout (1)
Vyomax Nutrition Maxi Carb Energy Drink	Carbohydrate drink	27.5 g	Pre- and intra-workout (1-2)
CNP Professional Pro Recover	Post workout protein	44.0 g	Post-workout (1)
Optimum Nutrition 100% Gold Standard Casein protein	Casein protein	1.5 g	Before bed (1)

'Some companies who develop and market pre-workout supplements even claim that a single use of their product will give the consumer a muscle 'pump' which is completely unsubstantiated.'

1. Whey protein supplementation before and after a workout – a quarter gram of protein per pound of bodyweight – a 200 lb person would need to approximately 50 g of whey protein before and after a workout[46]
2. Consume fast digesting carbohydrates before and after workouts, the same amount as protein – 50 g of carbohydrates such as sucrose or dextrose should be consumed before and after workouts for a 200 lb person[46]
3. Take creatine 3–5 g before and after a workout.[46]

The above recommendations are just from one website, another popular website[47] also advised consuming a whey protein (20 g) in the morning and casein protein (20 g) before going to bed, as well as a pre-workout supplement a combination of vitamins, minerals and fish oil throughout the day. If you add these recommendations together one could easily consume supplements up to 8–9 times in a day (depending on what product is used), not including multivitamin, mineral and fish oil supplements. When individual products are assigned to this regimen, Table 1 shows what the breakdown can look like.

You can clearly see from Table 1 that the frequency and overall sugar consumption from supplements alone can be as high as 7–8 times a day with a total of 107.9 g of sugar daily, this can be even higher if the supplements are consumed in higher dosages. Post-workout carbohydrate drinks were not included in Table 1 because post workout protein powder already contained a substantial amount of glucose and sucrose to help aid recovery. The high and frequent consumption of sugar-containing supplements can clearly put the consumer at an increased risk of developing dental caries due to the dissolution of tooth substance by acid as a result of the metabolism of fermentable carbohydrates by oral bacteria.[48,49] The Stephan's curve shows how demineralisation occurs when the pH drops below 5.5 but then gradually begins to rise by the buffering action of saliva resulting in remineralisation.[50] However, due to the high frequency of sugar consumption throughout the day, the time between the decreases in pH is not enough to allow effective remineralisation to occur therefore increasing the likelihood of dental caries.[51]

There has been no meaningful research into bodybuilding supplementation and the possible link to increased tooth decay. However, Needleman *et al.*[52] did analyse the oral health of Olympic athletes in the 2012 London Games and found that out of 302 athletes, from 25 sports, 55% had evidence of cavities, 45% had tooth erosion and 76% had gum disease. The authors highlighted that caries risk and disease levels had been repeatedly found to be high in athletes and that this could be due to frequent carbohydrate consumption and reduced salivary flow.[53-55]

Recommendations

Why is this important for the general dental practitioner? The answer is simple, recognition of this new risk group allows dental healthcare professionals to raise awareness and deliver more targeted preventive advice, as well as being better informed of what caries risk group to place these patients in.

The following are some recommendations which dental healthcare professionals may wish to consider in managing and treating this new risk group:

1. Identify supplement users when taking social histories and making dietary enquires, recording what product is consumed, sugar content if possible and the frequency of consumption
2. Record any evidence of erosion as extrinsic acids can be found in sports drinks and citrus products which can lead to the progressive loss of dental hard tissue[56]
3. If the patient is deemed to be at a high risk of having dental caries, take six monthly posterior bitewing radiographs until no new active lesions are found or until the patient enters a new risk category[57]
4. Provide appropriate preventative advice and consider fluoride supplementation, such as fluoride varnish application and prescribing high strength fluoride tooth paste, as per the recommendations set in the Public Health England's Delivering better oral health: an evidence-based toolkit for prevention (Third edition)
5. Place patients in the appropriate risk category and re-call as per dental recall guidelines by NICE.

The following advice and information can be given to patients as part of a wider preventive regimen in reducing the risk of dental caries as set forth in Delivering better oral health: an evidence-based toolkit for prevention:

Table 2 The sugar content of dietary supplements[6,42]

Product	Type	Sugar content (per serving in grams)
Optimum Nutrition 100% Natural Oats & Whey	Meal replacement	14.8
USN Whey & Oats	Meal replacement	9
USN Muscle Fuel STS	Meal replacement	4.4
CNP Professional Pro MR	Meal replacement	3.7
Muscle Pharm Combat Powder	Protein blend	2
BSN Syntha 6 EU	Whey protein	4
USN RTD Pure Protein Fuel 25	Whey protein	11.5
USN Pure Protein GF1	Whey protein	1.2
XL Nutrition Xtra Whey	Whey protein	3.8
Mutant Whey	Whey protein	1
PhD Nutrition Pharma Whey HT+	Whey protein	0.95
Optimum Nutrition 100% Gold Standard Whey	Whey protein	1.4
Optimum Nutrition 100% Gold Standard Casein Protein	Casein protein	1.5
USN Casein Night Time Protein	Casein protein	1.3
PhD Nutrition Casein	Casein protein	1.47
Mutant Micellar Casein	Casein protein	2
MusclePharm Combat Casein	Casein protein	1
High 5 Protein Recovery	Post workout	18
PhD Nutrition Recovery 2:1	Post workout	25.2
Kinetica 100% Recovery	Post workout	29.1
Optimum Nutrition Recover 2:1:1	Post workout	38.9
Universal Torrent	Post workout	26
Sci MX Recover 2:1 Isolate	Post workout	23.9
CNP Professional Pro Recover	Post workout	44
Dorian Yates Nox Pump	Pre-workout	0
USP Labs Jac3d Micro	Pre-workout	0
BPI 1.MR	Pre-workout	0
USN Hyperdrive N O	Pre-workout	0
BSN NO Xplode 3.0	Pre-workout	0
Grenade 50 Calibre	Pre-workout	0.6
MusclePharm Assault	Pre-workout	2
PhD Nutrition VMX2	Pre-workout	0.43
Optimum Nutrition Gold Standard Pre Workout	Pre-workout	0
Vyomax High Protein Oat Cookies	Protein bar	6.38
Sci MX Pro 2GO Duo Bar	Protein bar	11.4
Garnell Nutrition Protein Cookie	Protein bar	7.6
Grenade Reload Protein Flapjacks	Protein bar	8.1
Quest Nutrition Protein Bars	Protein bar	1

Table 2 The sugar content of dietary supplements[6,42] (continued)

Product	Type	Sugar content (per serving in grams)
XL Nutrition High Protein Flapjacks	Protein bar	4.9
CNP Professional Pro Flapjacks	Protein bar	4.8
SNE True Gainer	Weight gainer	20.7
Universal Real Gains	Weight gainers	7
USN Muscle Fuel Mass	Weight gainers	22.9
Mutant Mass	Weight gainers	34
CNP Professional Pro Mass	Weight gainers	2.3
Reflex Nutrition Instant Mass Pro	Weight gainers	11.4
Arnold Schwarzenegger Iron Mass	Weight gainers	4
BSN True Mass 1200	Weight gainers	16
Muscletech Mass Tech	Weight gainers	8
Optimum Nutrition Serious Mass EU	Weight gainers	21.3
Dorian Yates Creagen Creatine	Flavoured creatine	6
USN Creatine Anabolic	Flavoured creatine	2.4
Optimum Nutrition Micronized Creatine Powder	Creatine powder	0
USN Creatine Transport	Flavoured creatine	0.2
Universal Creatine	Creatine powder	0
Sci MX Creatine Monohydrate	Creatine powder	0
Reflex Nutrition Creapure Creatine	Creatine powder	0
Primaforce CreaForm	Creatine power	0
PhD Nutrition Creatine	Creatine powder	0
Muscletech Cell Tech Performance Series	Flavoured creatine	14
High 5 Energy Source 2:1 Fructose	Energy powder	16
PhD Nutrition Battery +/-3	Energy power	26.2
Science In Sport GO Energy	Energy powder	3.5
Thornton & Ross Glucose Power	Energy powder	90.9 (per 100g)
Kinetica 100% Energy	Energy powder	14.6
EZ Fuel Energy Bar	Energy bar	20.6
Vyomax Nutrition Maxi Carb Energy Drink	Energy drink	27.5

1. Explain the role of sugar in tooth decay and how frequent consumption of sugar-containing supplements can put the patient at an increased risk of tooth decay
2. Advise the patient to chew sugar-free gum containing xylitol as this has anticariogenic effects and helps to stimulate saliva flow which in turns buffers acid, supporting remineralisation[58]
3. Advise the patient to avoid sugarcontaining supplements within one hour of bed time as the salivary flow and buffering capacity is low/reduced at night[59]
4. Advise the patient to opt for low sugar or sugar-free supplements where sweeteners such stevia, sucralose and Acesulphame K which are calorie free and non-cariogenic[60,61]
5. Advise the patient to try and consume the majority of their macro nutrients from whole foods such as meats, grains, dairy, vegetables and nuts rather than supplements.

It is important to say here that not all supplements are high in sugar or even contain sugar, just as not all supplement users will consume products with the same frequency or quantity as others. It is all dependant on the individual and the goals they wish to achieve. For example, the bodybuilder who is trying to reduce their body fat for a competition will aim to restrict their sugar intake and as a result reduce what supplements they take and often they take them with the option of switching to sugar-free versions. On the other hand if the bodybuilder is aiming to gain weight they will consume more calories and part of that regimen may involve consuming high calorie supplements which, as shown in the Table 2, can also be high in sugar. A lack of awareness of athletes in the study by Needleman *et al.*[52] highlights that the population may be unaware of the risks to the person's oral health. A detailed history including questions regarding supplements should therefore be routine.

Conclusion

From personal experience, regular supplement consumers I have treated commonly have active caries and are generally unaware of the effect of supplements on their dental health. Understanding the lifestyle and habits of our patients helps us to provide more holistic dental care better suited to the mould of our patients.

References

1. University of Georgia. Magazine trends study finds increase in advertisements using sex. 2012. ScienceDaily. ScienceDaily, 5 June 2012. Online information available at www.sciencedaily.com/releases/2012/06/120605113725.htm (accessed June 2015).
2. Press gazette. UK magazine combined print/digital sales figures for the first half 2014: complete breakdown. 2014. Online information available at http://www.pressgazette.co.uk/uk-magazine-combined-printdigital-sales-fig-ures-first-half-2014-complete-breakdown (accessed June 2015).
3. BMA. Eating disorders, body image & the edia – a new BMA report. 2000. Press Release. Online information available at http://web.bma. org.uk/pressrel.nsf/wall/784D03804FA98F41802568F50054326A?OpenDocument (accessed June 2015).
4. BBC. Muscle supplement industry going mainstream. 2011.Online information available at http:// www.bbc.co.uk/news/business-12277808 (accessed June 2015).
5. BBC. The rise of the protein drinks for ordinary people. 2013. Online information available at http:// www.bbc.co.uk/news/magazine-22753620 (accessed June 2015).
6. Discount supplements. Sports supplements. Online information available at http://www.discount-supplements.co.uk/sports-supplements

(accessed June 2015).
7. Coburn J W, Housh D J, Housh T J et al. Effects of leucine and whey protein supplementation during eight weeks of unilateral resistance training. *J Strength Cond Res* 2006; **20:** 284–291.
8. Helms E R, Aragon A A, Fitchen P J. Evidence-based recommendations for natural bodybuilding contest preparation: Nutrition and Supplementation. *J Int Soc Sports Nutr* 2014; **11:** 20.
9. Campbell B, Kreider R B, Ziegenfuss T et al. International Society of Sports Nutrition position stand: protein and exercise. *J Int Soc Sports Nutr* 2007; **4:** 8.
10. Stark M, Lukaszuk J, Prawitz A, Salacinski A. Protein timing and its effects on muscular hypertrophy and strength in individuals engaged in weighttraining. *J Int Soc Sports Nutr* 2012; **9:** 54.
11. Helms E R, Zinn C, Rowlands D S, Brown S R. A systematic review of dietary protein during caloric restriction in resistance trained lean athletes: a case for higher intakes. *Int J Sport Nutr Exerc Metab* 2014; **24:** 127–138.
12. Hoffman J R, Falvo M J. Protein – which is best? J Sports Sci Med 2004; 3: 118–130.
13. Aoi W, Naito Y, Yoshikawa T. Exercise and functional foods. *Nutr J* 2006; **5:** 15.
14. Haff G G, Lehmkuhl M J, McCoy L B, Stone M H. Carbohydrate supplementation and resistance training. *J Strength Cond Res*. 2003; **17:** 187–196.
15. Phillips S M, Hartman J W, Wilkinson S B. Dietary protein to support anabolism with resistance exercise in young men. *J Am Coll Nutr* 2005; **24:** 134S-139S.
16. Biolo G, Tipton K D, Klein S, Wolfe R R. An abundant supply of amino acids enhances the metabolic effect of exercise on muscle protein. *Am J Physiol* 1997; **273:** E122–129.
17. Borsheim E, Tipton K D, Wolf S E et al. Essential amino acids and muscle protein recovery from resistance exercise. *Am J Physiol Endocrinol Metab* 2002; **283:** E648–657.
18. Devries M C, Phillips S M. Supplemental protein in support of muscle mass and health: advantage whey. *J Food Sci* 2015; **80 (Suppl 1):** A8-A15.
19. Boirie Y, Dangin M, Gachon P, Vasson M P, Maubois J L, Beaufrere B. Slow and fast dietary proteins differently modulate postprandial accretion. *Proc Natl Acad Sci U S A* 1997; **94:** 14930–14935.
20. Tipton K D, Rasmussen B B, Miller S L, Wolf S E, Owens-Stovall S K, Petrini B E, Wolfe RR: Timing of amino acid-carbohydrate ingestion alters anabolic response of muscle to resistance exercise. *Am J Physiol Endocrinol Metab* 2001; **281:** E197–E206.
21. Tipton K D, Elliott T A, Cree M G, Wolf S E, Sanford A P, Wolfe R R. Ingestion of casein and whey proteins results in muscle anabolism after resistance exercise. *Med Sci Sports Exerc* 2004; **36:** 2073–2081.
22. Tipton K D, Ferrando A A, Phillips S M, Doyle D J, Wolfe R R. Post exercise net protein synthesis in human muscle from orally administered amino acids. *Am J Physiol* 1999; **276**: E628–634.
23. Baty J J, Hwang H, Ding Z et al. The effect of a carbohydrate and protein supplement on resistance exercise performance, hormonal response, and muscle damage. *J Strength Cond Res* 2007; **21:** 321–329.
24. Denne S C, Liechty E A, Liu Y M, Brechtel G, Baron A D. Proteolysis in skeletal muscle and whole body in response to euglycemic hyperinsulinemia in normal adults. *Am J Physiol* 1991; **261:** E809–814.
25. Borsheim E, Aarsland A, Wolfe R R. Effect of an amino acid, protein, and carbohydrate mixture on net muscle protein balance after resistance exercise. *Int J Sport Nutr Exerc Metab* 2004; **14:** 255–271.
26. Stark M, Lukaszuk J, Prawitz A, Salacinski A. Protein timing and its effects on muscular hypertrophy and strength in individuals engaged in weight-training. *J Int Soc Sports Nutr* 2012; **9:** 54.
27. Haff G G, Lehmkuhl M J, McCoy L B, Stone M H. Carbohydrate supplementation and resistance training. *J Strength Cond Res* 2003; 17: 187–196.
28. Figueiredo V C, Cameron-Smith D. Is carbohydrate needed to further stimulate muscle protein synthesis/hypertrophy following resistance exercise? *J Int Soc Sports Nutr* 2013; **10:** 42.
29. Floyd J C Jr, Fajans S S, Knopf R F, Conn J W. Evidence that insulin release is the mechanism for experimentally induced leucine hypoglycemia in man. *J Clin Invest* 1963; **42:** 1714–1719.
30. Akhavan T, Luhovyy B L, Brown P H, Cho C E, Anderson G H. Effect of pre-meal consumption of whey protein and its hydrolysate on food intake and post meal glycemia and insulin responses in young adults. *Am J Clin Nutr* 2010; **91:** 966–975.
31. Staples A W, Burd N A, West D W, Currie K D, Atherton P J, Moore D R, Rennie M J, Macdonald M J, Baker S K, Phillips SM: Carbohydrate does not augment exercise-induced protein accretion versus protein alone. *Med Sci Sports Exerc*. 2011; **43:** 1154–1161.
32. Alan Albert Aragon1 and Brad Jon Schoenfeld. Nutrient timing revisited: is there a post-exercise anabolic window? *J Int Soc Sports Nutr* 2013; **10:** 5.
33. Cho M, Jung Y P, Goodenough C et al. Effects of ingesting a pre-workout supplement with and without synephrine on cognitive function, perceptions of readiness to perform, and exercise performance. *J Int Soc Sports Nutr* 2014; **11 (Suppl 1):** P36.
34. Bloomer R J, Farney T M, Trepanowski J F et al. Comparison of pre-workout nitric oxide stimulating dietary supplements on skeletal muscle oxygen saturation, blood nitrate/nitrite, lipid peroxidation, and upper body exercise performance in resistance trained me. *J Int Soc Sports Nutr* 2010; **7:** 16.
35. Bendahan D, Mattei J P, Ghattas B, Confort-Gouny S, Le Guern M E, Cozzone P J. Citrulline/malate promotes aerobic energy production in human exercising muscle. *Br J Sports Med* 2002; **36:** 282–289.
36. Hespel P, Derave W: Ergogenic effects of creatine in sports and rehabilitation. Subcell Biochem 2007; **46:** 245–259.
37. Green J M, Wickwire P J, McLester J R et al: Effects of caffeine on repetitions to failure and ratings of perceived exertion during resistance training. *Int J Sports Physiol Perform* 2007; **2:** 250–259.
38. Bloomer R J: Nitric oxide supplements for sports. *Strength Conditioning J* 2010; **32:** 14–20.
39. Bode-Boger S M, Boger R H, Creutzig A *et al*. L-arginine infusion decreases peripheral arterial resistance and inhibits platelet aggregation in healthy subjects. *Clin Sci (Lond)* 1994; **87:** 303–310.
40. Bode-Boger S M, Boger R H, Galland A, Tsikas D, Frolich J C. Larginineinduced vasodilation in healthy humans: pharmacokinetic-pharmacodynamic relationship. *Br J Clin Pharmacol* 1998; **46:** 489–497.
41. Adams M R, Forsyth C J, Jessup W, Robinson J, Celermajer D S. Oral L-arginine inhibits platelet aggregation but does not enhance endothelium-dependent dilation in healthy young men. *J Am Coll Cardiol* 1995; **26:** 1054–1061.
42. Vyomax Nutrition. Sports drinks & ready to drinks. Online information available at: http://www. vyomaxnutrition.com/orange-maxi-carbs-energydrinks-12x500ml-35-p.asp (accessed June 2015).
43. Grenby T H, Mistry M. Properties of maltodextrins and glucose syrups in experiments in vitro and in the diets of laboratory animals, relating to dental health. *Br J Nutr* 2000; **84**: 565–574.
44. Moynihan P J et al. Acidogenic potential of fructo-oligosaccharides: incubation studies and plaque pH studies. *Caries Research* 2001; **35:** 275
45. Milosevic A, Kelly M, McClean A. Sports supplement drinks and dental health in competitive swimmers and cyclists. *Br Dent J* 1997; **182:** 303–308.
46. Steiffel S. The best muscle building supplements for beginners. Muscle & Fitness. Online information available at http://www.muscleandfitness.com/supplements/build-muscle/best-muscle-building-supplements-beginners (accessed June 2015).
47. Bodybuilding.com. Supplement time: Timing is everything. Online information available at http:// www.bodybuilding.com/fun/supplement-time-timing-is-everything.html (accessed June 2015).
48. König K G, Navia J. Nutritional role of sugars in oral health. *Am J Clin Nutr* 1995; **62 (suppl)**: 275S–283S.
49. Touger-Decker R, van Loveren C. Sugar and dental caries. *Am J Clin Nutr* 2003; **78:** 881S–892S.
50. Ten Cate J M, Duijsters P P. Influence of fluoride in solution on tooth demineralization. I. Chemical data. *Caries Res* 1983; **17:** 193–199.
51. Moynihan P J, Kelly S A M. Effect on Caries of restricting sugar intake: systematic review to inform WHO guidelines. *J Dent Res* 2013; **93:** 8–18.
52. Needleman I, Ashley P, Petrie A *et al*. Oral health and impact on performance of athletes participating in the London 2012 Olympic Games: a cross-sectional study. *Br J Sports Med* 2013; **47:** 1054–1058.
53. Yang X J, Schamach P, Dai J P *et al*. Dental service in 2008 Summer Olympic Games. *Br J Sports Med* 2011; **45:** 270–274.
54. Forrest J O. Dental condition of Olympic Games contestants—a pilot study, 1968. *Dent Pract Dent Rec* 1969; **20:** 95–101.
55. Soler B D, Batchelor P A, Sheiham A. The prevalence of oral health problems in participants of the 1992 *Olympic Games in Barcelona*. *Int Dent J* 1994; **44:** 44–48.
56. Scheutzel P. Etiology of Dental Erosion—Intrinsic Factors. *Eur J Oral Sci* 1996; **104:** 178–190.
57. FGDP. Selection criteria for dental radiography. 2015. Online information available at http://www.fgdp. org.uk/OSI/open-standards-initiative.ashx (accessed June 2015).
58. Trahan L. Xylitol: a review of its action on mutans streptococci and dental plaque—its clinical significance. *Int Dent J* 1995; **45:** 77–92.
59. Wikner S, Söder P-Ö. Factors associated with salivary buffering capacity in young adults in Stockholm, Sweden. *Scand J Dent Res* 1994; **102:** 50–53.
60. Roberts M W, Wright J T. Non-nutritive, low caloric substitutes for food sugars: Clinical implications for addressing the incidence of dental caries and overweight/obesity. *Int J Dent* 2012; 625–701.
61. Mandel I D, Grotz V L. Dental considerations in sucralose use. *J Clin Dent* 2002; **13:** 116–118.

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