abdo COLLEGE

Re:View

Keeping excellence in your sights | June 2018 | Issue 33

To FBDO and beyond

Catching up at the shows

ABDO College at 100% Optical and Optrafair

Interview with Nicola Stokoe

What sparked Nicola's blue light research?

How to review the literature

Time to think about future prospects

With exams looming very close for many of you, embarking on another course may be the farthest thing from your mind at the moment, but it's worth giving it some thought, as your FBDO can be the key to open up a vast and varied optical world. On page 6 of this issue, we look at some of the career paths open to you.

Do you or your practice colleagues advise 'blue-blocking' lenses? If so, you really need to read Nicola Stokoe's research review on page 10. ABDO has also produced member guidance on this topic https://www.abdo.org.uk/wp-content/uploads/2017/12/ABDO-Blue-Light-Guidance-WEB.pdf and it may be useful to read this in conjunction with Nicola's article.

Any good researcher will always consult several sources of information, before arriving at his/her own conclusions about a given device/treatment, etc, and Peter Black's article on page 14 reminds us that research isn't just for those embarking on a degree course. His article provides an abundance of information for those new to this endeavour.

If entering the world of research seems daunting for most of us, imagine how much more difficult it must be for someone who struggles with spelling or grammar, or for whom English is a second language. On page 12 Mark Nevey gives lots of useful tips on how to overcome these additional hurdles.

Finally, we are sad to be saying farewell this month to Frances Mecoy, who has recently been brightening up the corridors and classrooms of the College with her cheery disposition. Her wealth of knowledge and experience have been a great help during Emma's absence.

Angela McNamee
BSc(Hons) MCOptom FBDO (Hons) CL FBCLA Cert Ed
Chairman,
ABDO College Board of Trustees

Contents

ABDO College
Godmersham Park, Godmersham, Canterbury, Kent CT4 7DT
tel: 01227 738 829 option 1 | fax: 01227 733 900
info@abdocollege.org.uk | www.abdocollege.org.uk
www.twitter.com/abdocollege | www.facebook.com/ABDOCollege | www.LinkedIn/XXX

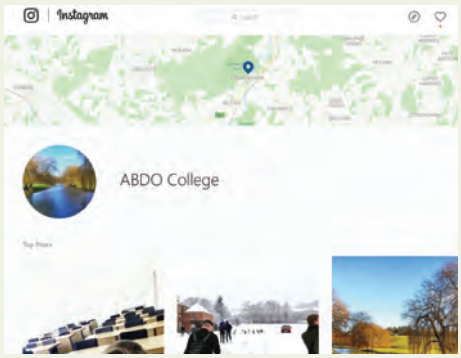
News

Stepping into the breach

A big thank you to Frances Mecoy for acting as a College technician covering maternity leave over the last few months. Mark Turner, College Technician said, "Frances has been a dream to work with. Her experience has made for an easy transition here at the College. Every day I have enjoyed her enthusiasm and she has a great eye for detail. I will think of her every time I see the Tottenham score, but I am sure she won't miss us reminding her that Tottenham have never beaten Blackpool in the Premier League!"

Frances added: "I've really enjoyed my time at the College, working with old friends. I worked as a tech at City College for many years, and have very much enjoyed the College atmosphere and meeting the students."

Frances Mecoy



Keep up with ABDO College on Instagram

Join our Insta community

Thanks to everyone who has interacted with ABDO College on Instagram. We have only been up and running for a few months and already we have reached 500 followers.

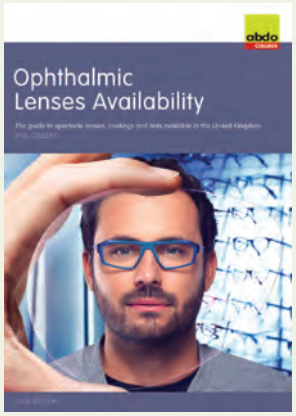
It is great to see all your posts about your time at the College. If you haven't yet followed, please do so – and don't forget to tag #ABDOCollege.

Lens Bible 2018 launched

The new 2018 Edition of Ophthalmic Lenses Availability is now available from the ABDO College Bookshop in eBook and print formats.

Launched at Optrafair in April, this definitive guide to spectacle lenses, coatings and tints available in the UK collates information from leading lens manufacturers enabling anyone in the optical industry to rapidly locate the most suitable lenses. A valuable dispensing aid, the guide includes:

- Manufacturers' data
- Lens data files
- An availability index
- PPL corridor length and fitting heights
- Materials, tints and coatings
- Lens engravings list



Order your copy at www.abdocollege.org.uk/bookshop

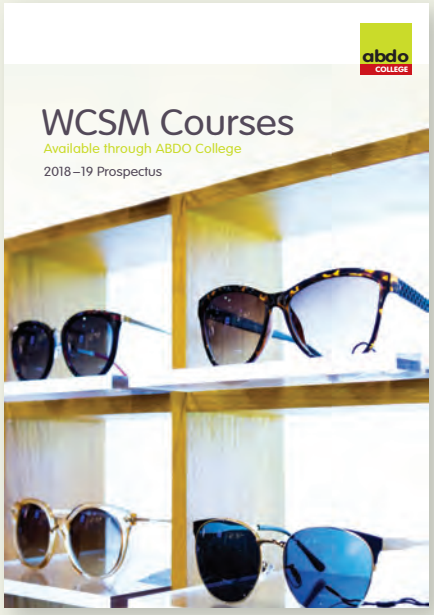
ABDO Head of Communications, Antonia Chitty, said: "Simply known as 'The Lens Bible', this essential guide is much in demand every year. Our thanks must go to Phil Gilbert for continuing the complex job of editing the book. Copies sold fast at Optrafair, and are available now in the ABDO College Bookstore for online ordering. Watch out in 2019 for a new improved Ophthalmic Lens Availability."

Deadlines looming

Applications are now open for many ABDO College courses, but the closing date is coming up fast.

If you want to apply for the Ophthalmic Dispensing Diploma, the Foundation Degree, the BSc (Hons) in Vision Science or the Contact Lens course, applications need to be in by 28 July.

You have until September for the WCSM Optical Assistant Level 4 and Level 4 Diploma for Optical technicians (SMC (Tech)). You also have until September for Optical Support Level 2 and 3.



WCSM Courses prospectus

The WCSM Courses prospectus features the WCSM Courses currently available through ABDO College:

- Level 2 Optical Support
- Level 3 Optical Support
- Level 4 Diploma for Optical Assistants
- Level 4 Diploma for Optical Technicians
- Fast Track Technician Training for FBDOs
- SCQF Level 5 Certificate in Optical Care
- SCQF Level 7 Certificate in Optical Care

To obtain a copy of the WCSM Courses Prospectus, please contact the Courses Team at ABDO College on 01227 738 829 (Option 1), or email info@abdocollege.org.uk

Catching up at the shows

Staff from ABDO College were on hand to greet members and students at both 100% Optical in London in January and Optrafair in Birmingham in April. The College had it's usual bright stand at Optrafair opposite the ABDO Lounge, which was busy from start to finish each day.

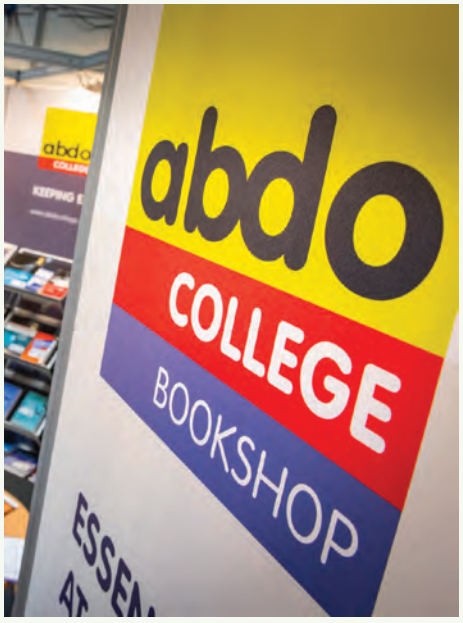
Both shows gave staff from all departments the chance to catch up with members, students and other visitors interested in finding out more about the extensive range of ABDO College courses on offer – including the Worshipful Company of Spectacle Makers' (WCSM) courses and degree programmes run in conjunction with Canterbury Christ Church University.

The ABDO College Bookshop was as in-demand as ever at Optrafair with

visitors keen to find out about the vast the array of texts available – including the newly released 2018 edition of Ophthalmic Lenses Availability.

In addition, a special workshop for ABDO College tutors was held during Optrafair on Monday 16 April. Hosted by Jill Kemp, the College's Head of Operational Services, the workshop allowed tutors to share best practice ideas and participate in group discussions.

Left: Visiting the ABDO Arms at 100% Optical
Above left: Catching up with friends and colleagues in London
Above: Friendly faces at the ABDO College stand



Above: Taking a stand at the NEC
Right: Justin Hall of the ABDO Bookshop taking an order

Top: Team members from ABDO College
Left: Gill Bickle leads a tutor workshop session
Above: ABDO College tutor workshop

To FBDO and beyond

If you are thinking about what to do when you qualify, you have plenty of options. You may want a short or longer break from study, but if you would like to take your career onto the next step, ABDO College offers some great courses that can lead to qualifications to take you beyond FBDO. Read on to find out more about the ABDO Tutor course, qualification as a CLO, a Low Vision Honours course, a Degree top-up and the fast-track to become SMC (Tech) qualified.

Become a contact lens optician

The world of contact lenses is growing. Becoming a contact lens optician (CLO) is a great way to take the skills you have already developed as a DO, such as your ability to communicate with patients and your knowledge of the eye, and use them in another specialism. From a business perspective, where there is increasing pressure on optometrists' chair time, it is logical for dispensing opticians qualified as a CLO in this specialism to be the dedicated practice experts in contact lenses.

A CLO is a specialist practitioner who is trained and qualified to fit, and provide aftercare for, patients with contact lenses. CLOs assess whether contact lenses meet the needs of their patients, resolving clinical and tolerance issues, and remain responsible for clinical decisions enabling them to provide continuity of care to their patients.

If you want to become a CLO you must hold the ABDO Level 6 Diploma in Ophthalmic Dispensing (FBDO) or be a qualified optometrist. You need to be a member of ABDO and registered with the GOC. You must be working in practice as a trainee CLO for a minimum of one day a week. It is essential that you are gaining practical experience to support your theory learning and developing practical skills in contact lens practice. Your employer will need to support you, and you will need a dedicated supervisor to work with you and help you with your training in practice.

A specialism in low vision

The ageing population and pressures on NHS services mean there is more demand for eyecare services in optical practices than ever before. Dispensing opticians and optometrists can play a major role in meeting the demands of this new-look High Street vision and health care. The key, of course, is that they will need the right education, training and qualifications to support this. Low vision is an interesting field of clinical practice, not to mention hugely rewarding, spanning ocular pathology, epidemiology, lighting, optical design, psychological adaptation and devices for sensory substitution.

Low vision with ABDO College is an 'honours level' qualification that has been accredited by Ofqual (Office of Qualifications and Examinations Regulation) as level 6 on the National Qualifications Framework (NQF). This means that it is at the same academic level as a Bachelor's degree with honours or graduate diploma. If you want to start the Low Vision course you must hold the ABDO Level 6 Diploma in Ophthalmic Dispensing (FBDO) or be a qualified orthoptist, optometrist or ophthalmologist. You need to be a member of ABDO and registered with the General Optical Council (GOC).

Become a contact lens optician

BSc (Hons) Vision Science – the profession-specific degree top-up

For trainee DOs starting out on their study today, ABDO College offers the choice of either the Diploma (FBDO) or the Degree (FBDO BSc (Hons)) pathway. For existing holders of the FBDO qualification, there is now an opportunity to study and complete a degree top-up, the BSc (Hons) Vision Science. Provided by ABDO College, working in conjunction with Canterbury Christ Church University (CCCU), the new BSc (Hons) in Vision Science course is designed for fully-qualified dispensing opticians who wish to gain a profession-specific degree and acquire graduate skills that can be applied to the workplace. This is a unique opportunity for dispensing opticians to 'top-up' to a degree whilst still working in practice

As the course is completed by online distance learning via CCCU's Virtual Learning Environment, you study at any time that suits you 24/7. This also means that there are no travel or accommodation costs, no books to buy, no exams to take. There is a flexible timeframe to complete this qualification; 18 months is the suggested time, but you have up to three years. Study consists of a mix of assessments, essays, poster, leaflet, case study and a workplace project.

Applications are open now to start in September. You should have the ABDO Level 6 Diploma in Ophthalmic Dispensing (FBDO) qualification and have current ABDO membership.

Fast-track to SMC (Tech)

The SMC (Tech) qualification is regarded by many as the 'Gold Standard' for the industry and will entitle qualified persons to use the letters 'SMC (Tech)' after their name. This fast-track Level 4 Diploma for Optical Technicians qualification is awarded by the Worshipful Company of Spectacle Makers.

It enables DOs to increase their knowledge of production and glazing methods and broaden their skills and experience. This benefits the practice in terms of having additional qualified resource on hand to supplement the existing lab team and to provide cover for holidays and sickness when required.

The course covers the elements of glazing and the technician's roles that do not form part of the FBDO qualification. There are written assignments and a workshop on how to glaze. For experienced glazers, there is no requirement to attend the workshop. Courses start in January each year and lead to examinations in December. The examination includes three theory papers and a practical assessment.

Blended Learning Tutors Course

ABDO College offers a comprehensive programme of blended learning courses. With growing numbers of students, the College is now looking to recruit and train more tutors. Completing the tutor course gives you the chance of flexible, ongoing paid work so you can earn in your spare time. Becoming a tutor offers the chance to give back to the profession and invest in professional development and learning of trainee dispensing opticians and support staff

Every potential tutor needs to complete a 10-week online course on tutoring, involving 10 to 15 hours' study per week, followed by an extended period of mentoring and support. With all course material, you will receive a comprehensive marking schedule to assess student assignments and support your personal knowledge and understanding. Once you have completed the course, you will be able to determine how many students you would like to tutor each year.

The FBDO programme is now delivered online via the Moodle platform so basic IT skills are essential but full training and support will be given to extend these to the required level. You must have passed the ABDO Level 6 ophthalmic dispensing final theory examinations at the first attempt. You will be paid when you commence marking students' papers. Rates of pay vary depending on the demands of each course. ABDO College will provide full support whilst being a tutor.

Apply now

If you are interested in any of these courses, contact the team at ABDO College for more information and to register your interest. Telephone 01227 738 829 (Option 1) or email info@abdocollege.org.uk

Nicola Stokoe

We find out about Nicola and her research

In their final year, ABDO College degree students are all required to complete a dissertation which focuses on a research question of their own choice. Dispensing optician, Nicola Stokoe, qualified in 2017. In this feature, you can read about Nicola and her research paper, '*An investigation into whether blue light exposure contributes to the onset of macular degeneration, to justify supplying a blue-blocking lens for retinal protection'.*

Like many people, Nicola stumbled into the world of optics. She says, "I was unemployed when my mum saw the ad for a trainee DO; I applied and started work two days later at Specsavers in Sunderland. My aunty works in optics, but I didn't think it was a career that would interest me. My only experience of eyecare was eye exams as a child. I didn't need a prescription so I thought it was all very straightforward.

"It didn't take long for me to realise there was far more to it. I really liked the fashion side of it. I try all the new frames on: if I know how they fit on me that will help me advise other people. I also like the paediatric side of it. It can be difficult for parents who don't wear glasses when faced with finding glasses for their child for the first time, so I like to put their mind at rest and give them a hand."

Nicola studied for her Cert 3 and Cert 4 with Specsavers and says, "I learnt more about the physics side of things which I hadn't known. After Cert 3 and Cert 4 the company suggested I do the diploma. I listened to the views of both the DOs in practice, one of whom had trained with ABDO College, the other who had done a diploma elsewhere. He said the ABDO College course was harder, which made me want to do the course even more because I thought I would learn more. I took out a student loan and started the degree."

Sense of support

Nicola loved her first impressions of ABDO College. She says, "The building is amazing – what a great place." She also enjoyed meeting her fellow student DOs: "You're all in the same boat. I stayed in the accommodation, and there is a great sense of support there. We would all sit round and study together, so you always have someone to bounce your questions off. The teachers were brilliant, happy to stay late and go through something extra too."

Nicola found the first year the hardest. She explains, "I had to learnt to manage my time with work, study and block release. I also had to get used to studying again – I was 25, and I'd been out of education a while." She found the ABDO College tutor system most helpful, saying, "It was good to have someone who had done it before specifically to help you."

There were a number of highlights of the course for Nicola. She explains, "Anatomy was brilliant, and I loved practical dispensing. It's great to have all the background knowledge, but you still have to sit face to face with someone and measure them." She continues, "The essays were the part that I least enjoyed. As much as the lecturers give you great notes, I'd never written essays before. You have to find resources, check your hierarchy of evidence, and

'The teachers were brilliant, happy to stay late and go through something extra too.'

that was hard to get into."

However, Nicola overcame her issues with essays in time for her final year dissertation. She says, "With that, I picked the subject that I was interested, which made a big difference, and now I really enjoy the research side of things. What I learnt makes you evaluate things more critically. Now, when I read an article in the paper or online I think, 'Where's the evidence?'"

Nicola's paper was, 'An investigation into whether blue light exposure contributes to the onset of macular degeneration, to justify supplying a blue-blocking lens for retinal protection'. Explaining why she chose that particular subject, she says, "I chose the subject because the practice I work in didn't specifically offer a blue blocking lens and I was wondering whether we should we be offering one; is there a health benefit, or is it just a marketing concept?" After she reviewed the evidence, Nicola says, "Overall, I found that the studies I looked at supported the fact that blue light denatures retinal cells. But it was difficult because it was all lab based experiments, which can be difficult to apply in everyday practice."

She adds, "My feeling is that you can offer blue light filters as long as you are transparent to the patient and don't make claims you can't back up."

Nicola is still in the same practice, working within a team of DOs. She says, "We bounce ideas off each other and support each other so it is a great place to work. In the future, I would like to go on to become a distance learning tutor for ABDO College, and I have sent off for my application for that. I would like to be able to support someone else in the same way I was supported."

"Don't make claims to patients you can't back up," says Nicola

ABDO College prospectus

ABDO College specialises in distance and blended learning education for the optical profession. It is the only college in the UK devoted solely to the teaching of ophthalmic dispensing and its related specialist areas.

Offering a range of courses including access, foundation degree, diploma, degree, advanced and honours, ABDO College provides quality programmes leading to ABDO examinations and qualifications.

To obtain a copy of the prospectus, please contact the Courses Team at ABDO College on 01227 738 829 (Option 1), or email info@abdocollege.org.uk

An investigation into whether blue light exposure contrib degeneration, to justify supplying a blue-blocking lens for

By Nicola Stokoe FBDO

INTRODUCTION

Age-related macular degeneration (ARMD) is the leading cause of patients registering as partially sighted (Bennion *et al*, 2012) in developed society. One implicated factor into the onset of ARMD is blue light, which is part of the visible spectrum at 400nm to 480nm (Walker *et al*, 2012), this is a short wavelength for visible light. As rod photoreceptors are highly sensitive to shorter wavelength light, concerns arise for the effect upon a patient's scotopic vision (Kiser *et al*, 2008).

Early stages of ARMD are characterised by degeneration of the retinal pigment epithelium and photoreceptors (Margrain *et al*, 2004) eventually resulting in atrophy and scotoma. Although cones are said to be more resilient to light exposure, the loss of mechanical support following rod atrophy is implicated in secondary cell death (Geiger *et al*, 1985). In response to this suggested connection, several ophthalmic lens companies have started to manufacture and promote lenses, which claim to block out blue light. Working within a large multiple with no availability of blue-blocking lenses, an investigation was conducted to determine whether evidence suggests this lens should be available as a medical recommendation at the time of examination.

FINDINGS

A literature search was conducted and using exclusion criteria findings were narrowed from thousands to only those articles which best fitted the research question. The final choices of the most relevant articles were four experimental studies conducted in laboratory settings, utilising retinal cells to test a hypothesis.

Arnault *et al* (2013) used Porcine retinas to test the effects of light from the visible spectrum; ranging from 380nm to 520nm. The aim of the research was to determine which, if any wavelength of light was more harmful to the retinal pigment epithelial cells. The retinas were exposed to light in 10nm bands and the release of the chemical known as A2E, was measured. This is the major component in the formation of Lipofuscin, it is also reported to cause phototoxicity of cells. Cells were exposed to light in the absence of A2E and also with varying levels of the chemical present. Measurements were taken of cell viability, apoptosis and necrosis. Wavelengths of 440 and 480nm were found to cause the greatest phototoxicity of cells.

Kernt *et al* (2012) used human retinal pigment epithelial cells to test the reduction of cell atrophy in pseudophakia. Three testing groups were used; one group assessing the retinal damage without an intra-ocular lens (IOL), one group where the IOL offered protection from ultraviolet (UV) light only and a third group where the IOL offered protection from both UV and blue light. The fourth group, used as a control were kept in darkness until measurements were required.

A spot-light source was used for illumination (spectral output between 400 and 700nm) and electron microscopy readings found a significantly reduced number of RPE cells after light exposure. These effects were to a lesser extent with the UV-blocking IOL and alterations were reduced significantly for the IOL with a blue light blocker incorporated. As the damage was significantly reduced by the blue-blocking lens, this suggests that short wavelength light could cause the most damage.

Roehlecke *et al* (2011) performed an experiment to investigate the effects of blue light irradiation in murine retinal cell cultures. Irradiation occurred using a 405nm visible blue light, this was applied for varying amounts of time ranging from three to 24 hours. Examination of the samples found defects had occurred within the cell membranes and disorganisation had replaced neatly stacked organisms. Initiation of cell death was apparent after six hours of exposure and damage significantly increased after 16 hours of irradiation. The outcomes of this study suggest that prolonged exposure to blue light can cause breakdown of the cell structure and degeneration of cells due to stress responses.

Hui *et al* (2009) conducted an investigation into the effect of a UV absorbing IOL in comparison with a lens which also absorbed blue light using human retinal cells. Three testing groups occurred; one group which was exposed with the UV-blocking IOL in place, a second with the blue-blocking lens in place and a third with no lens interference. A control group was kept in darkened conditions and not exposed to the white light. In the group with no IOL in place, finding were that white light exposure decreased cell viability to an average of 37%. The UV-blocking lens slightly inhibited damage to increase cell viability to 44% average. However, the blue-blocking IOL had a significant inhibitor effect with cell viability increased to a 79% average.

utes to the onset of macular
retinal protection

DISCUSSION

The studies above have low application regarding external validity, especially in Arnault *et al* (2013) and Roehlecke *et al* (2011) as the retinal cells were not human. It is, therefore, difficult to confirm that the results would be transferrable to a different species without further research. Roehlecke *et al* (2011) conducted previous research in 2009, which used human retinas, so it is likely that earlier research would have greater application due to being easier to apply findings to the population.

The other problem with generalising the above studies is that all were conducted in a laboratory setting. Therefore, although cause and effect were likely to be correct, it is unlikely that the same results would be found in a real-world study. Three of the studies were conducted with the cells in vitro; this means that there is no other structural protection for the cells. In a live human eye, the light would first have to penetrate the cornea, aqueous and vitreous before reaching the retina. At this point, the intensity of the light could have been reduced to a non-harmful level. This test tube process, coupled with the long periods of prolonged exposure, make the studies highly unrealistic.

Kernt *et al* (2012) and Hui *et al* (2009) gave details of control groups within the experiments. One group of cells was kept in darkened conditions and another group exposed to light, without the IOL barrier. This was used as reinforcement of cause and effect of the experimental results. Martin (2005) suggested that for laboratory studies, biological variations can cause differences of results. Both Kernt *et al* (2012) and Hui *et al* (2009) made an effort to keep all of the retinal cultures in the same conditions.

The Arnault *et al* (2011) study was partially funded by a lens manufacturing company; three of the researchers also worked for the company and therefore the study could have been tainted by researcher bias. It would be beneficial to this company to find a positive correlation between the two factors as it manufactures lenses to be sold for the purpose of blocking blue light.

Within the subject field, there are many variables which could affect the retina in a human being, this is why the experimental method of research used is appropriate to the hypothesis for the four articles chosen. In a laboratory, the researchers can isolate one variable at a time, without concern of contamination. As there is such a high level of control, each study could be easily repeated to confirm the results if required. Arnault *et al* (2013) and Hui *et al* (2009) give details of the manufacturer for every piece of equipment used and how each item was utilised. This means a repeat study could be exact, limiting any errors in method.

The studies chosen were very relevant and potentially most suitable to test out the topic hypothesis. It shows that the literature search and process of article selection was successful as all studies tested blue light as the only variable.

CONCLUSION

The research above could be applied to practice in the form of introducing a blue-blocking ophthalmic lens option to the product range. This can be confidently recommended to patient as a lens to prevent retinal damage. As although the research above does not conclusively suggest a link to age-related macular degeneration, it does clearly indicate that blue light has a damaging effect upon retinal cells.

The research above could also have an impact upon the profession in the way that blue light blockers could be recommended for provision to under-16s who were dispensed with spectacles. For the majority of optical practices, it is standard to dispense a child with a UV 400 filter on their lenses. However, as both Kernt *et al* (2012) and Hui *et al* (2009) showed, a blue light filter significantly reduces the damage to the retina when compared with a UV-filtering lens. This could have a positive effect upon the patient's ocular health in later life. Ethical restrictions would have to be considered and informed consent obtained if these suggestions were to be tested in a longitudinal study.

REFERENCES

Arnault E, Barrau C, Nanteau C, Gondouin P, Bigot K, Viénot F, Gutman E, Fontaine V, Villette T, Cohen-Tannoudji D, Sahel J and Picaud S (2013)
Phototoxic action spectrum on a retinal pigment epithelium model of age-related macular degeneration exposed to sunlight normalized conditions.
PloS One 8(8), pp. e71398. doi:10.1371/journal.pone.0071398.

Bennion A, Shaw B and Gibson J (2012)
What do we know about the experience of macular degeneration? A systematic review and meta-synthesis of qualitative research.
Social Science and Medicine 75 (6): 976–985. DOI 10.1016/j.socscimed.2012.04.023.

Geiger P, Barben M, Grimm C and Samardzija M (2015)
Blue light-induced retinal lesions, intraretinal vascular leakage and edema formation in the all-cone mouse retina.
Cell Death and Disease Nov; 6(11): e1985 pp. 1–12.

Hui S, Yi L and Fengling QL (2009)
Effects of light exposure and use of intraocular lens on retinal pigment epithelial cells in vitro.
Photochemistry and Photobiology 85: 966–969.
doi:10.1111/j.1751–1097.2008.00506.x.

Kernt M, Walch A, Neubauer AS, Hirneiss C, Haritoglou Md C, Ulbig MW and Kampik A (2012)
Filtering blue light reduces light-induced oxidative stress, senescence and accumulation of extracellular matrix proteins in human retinal pigment epithelium cells.
Clinical & Experimental Ophthalmology 40(1), pp. e87–e97.
doi:10.1111/j.1442-9071.2011.02620.x.

Kiser A, Deschler E and Dagnelie G (2008)
Visual function and performance with blue-light blocking filters in age-related macular degeneration.
Clinical & Experimental Ophthalmology 36: 514–520. Doi 10.1111/j.1442-9071.2008.01824.x.

Margrain TH, Boulton M, Marshall J and Sliney DH (2004)
Do blue light filters confer protection against age-related macular degeneration?
Progress in Retinal and Eye Research 23(5), pp. 523–531.
doi:10.1016/j.preteyeres.2004.05.001.

Martin R (2005)
Epidemiological study design for health care research and evaluation. In: Bowling A and Ebrahim S Handbook of Health Research Methods. Maidenhead: Open University Press. 101.

Roehlecke C, Schaller A, Knels L and Funk R (2009)
The influence of sublethal blue light exposure on human RPE cells.
Molecular Vision 15: 1929–1938.

Roehlecke C, Schumann U, Ader M, Knels L and Funk R (2011)
Influence of blue light on photoreceptors in a live retinal explant system.
Molecular Vision 17, pp. 876–884. Available at www.molvis.org/molvis/v17/a98.

Walker DP, Vollmer-Snarr H and Eberting CLD (2012)
Ocular hazards of blue-light therapy in dermatology.
Journal of the American Academy of Dermatology 66(1), pp. 130.
doi:10.1016/j.jaad.2010.11.040.

How to break down language barriers

by Mark Nevey FBDO

When you begin studying for a new vocation, there is inevitably a certain amount of writing involved, and courses at ABDO College are no different.

Whilst some people thrive on writing tasks, it's fair to say that many find it a chore. For some, faced with a first essay, it can seem an impossible task. Dyslexia sufferers or students with English as their second language may find the prospect daunting. Anxiety and stress undoubtedly make this worse. There are services out there, as well as useful tips and advice, to both reassure and support you with overcoming these difficulties. Read on for some helpful advice if you're struggling with spelling and grammar, or have English as a second language.

Even the best writers can be hit with 'writer's block', and it can get worse the more you battle with it. So, if you already recognise one of your weaknesses to be spelling and grammar, you suffer with dyslexia, or English is your second language, it is essential to recognise this and seek help and advice.

You may think it's obvious to check over your work, but don't rely on your own judgement. Show lots of different people your writing. People around you can have different contributions to make. Another person can be capable of spotting mistakes that you may have overlooked. Never be too proud to request a proofreading of your work, be it from family members, friends or colleagues. The difficulty that can arise from asking family and friends to proofread is their lack of understanding of specialist terms and vocabulary. Of course, asking colleagues of a similar or even the same level of qualification, means that they already have a grasp of the subject and the associated terms and specialised language.

It's good to talk

One person who knows what it's like to have English as a second language is Pawel Wisnieswki. He is currently an Optical Assistant, who has done a fair bit of optical training already, and is hoping to start the DO diploma in September.

Pawel moved to England from Poland in 2015 and immediately entered the world of work, having learnt English in Poland. It wasn't long before he found himself in optics, working for Specsavers in Cheylesmore, where he showed an immediate desire to expand his knowledge and progress within the industry. He has had his fair share of difficulties getting to grips with the language, especially in the education system.

Pawel Wisnieswki

Pawel says, "I found context a real difficulty and the use of common phrases and colloquialisms made understanding an entire sentence very hard at times. Also, learning a whole new set of specialised language was like learning English all over again. However, making sure I had a very good grasp of basic English has really helped me to take the first steps towards learning this new language, with all its scientific terms and difficult spellings and pronunciations."

'I found context a real difficulty and the use of common phrases and colloquialisms made understanding an entire sentence very hard at times.'

Pawel explains other tips that helped him with his practical use of English, including immersing himself in popular English culture, like watching sitcoms and movies, and reading modern English literature. "Conversation is the best way to learn. I would recommend talking to people as much as you can. Different people have different ways of speaking, and getting as much exposure to that as possible is the best way to learn what they can't teach you in the text books."

Dyslexia presents quite different issues with spelling and grammar, and these can be harder to overcome. Sufferers can find help on the British Dyslexia Association website (www.bdadyslexia.org.uk) and the Dyslexia Action website (www.dyslexiaaction.org.uk). Visit the sites for tips and advice, as well as dyslexia aids and stationary. ABDO College can provide extra time and attention for dyslexia sufferers, which would be discussed on an individual basis.

For those on the degree course, there are a vast array of services provided by Canterbury Christ Church University. The disability support services can be found on the university's webpage, under the subheading 'Students' and 'Support services'. It is important to point out that their services don't only cater for dyslexic students, but can provide support on many levels and in regards to many different learning issues.

If writing and reading isn't your strength, don't be deterred. Allow yourself plenty of time to overcome written English difficulties. Commence your work well in advance, and talk to your tutor at the start. Never be ashamed to read over your work again and again, because even the best writers can overlook errors in their writing. Allowing enough time for re-reads and re-drafts is vitally important.

'Conversation is the best way to learn'

Try to avoid leaving work to the last minute as pressure can lead to more mistakes! Everybody should have their work proofread, by a colleague or friend as well as simply going over it themselves. Try to find a buddy on your course and you can re-read each other's work and provide mutual support.

ABDO College on social media

ABDO College is now active on social media. You'll find news about current and future courses, and everything from dates of manufacturer visits to application deadlines and revision tips. Do like, follow, share and invite colleagues:

https://www.facebook.com/ABDOCollege/

https://twitter.com/abdocollege

www.linkedin.com/company/the-abdo-college-of-education/

How to review the literature

By Peter Black MBA FBDO FEAOO

Until recently, a literature review was not something qualified or trainee dispensing opticians were expected to do unless they were studying on a BSc (Hons) programme. However, the April 2016 *GOC Standards of Practice for Optometrists and Dispensing Opticians* raised a new expectation that all registered opticians are able to review scientific literature and assess the evidence for the advice they give, the products they dispense, and the tests or treatments they carry out.

Standard of Practice 5, Keep your knowledge up to date, is the only standard that does not apply to students, since they are still learning. However, this means students must now develop the skills, outlined in standards 5.3 and 5.4, before qualification. These skills are now needed by qualified dispensing opticians, and for many it is the first time they have been required to think in this way.

Standard 5.3 obliges registrants to: "be aware of current good practice, taking into account relevant developments in clinical research, and apply this to the care you provide" and 5.4 requires that opticians: "reflect on your practice and seek to improve the quality of your work through activities such as reviews, audits, appraisals or risk assessment".

The General Optical Council (GOC) expects opticians to regularly review evidence to support their practice, and key to this is the capacity to review the associated literature. Previously, a literature review would only be conducted by students as part of an academic deliverable such as a dissertation; or by academics and researchers reviewing literature relevant to their field, perhaps as a requirement of those fund or commission research.

From a qualified registrant's perspective, it would be hoped that if there was a need for evidence into an aspect of practice then there would already be relevant research that has been reviewed. However, recent fitness to practise cases related to the damaging effect of blue light, and the dispensing of tinted lenses to alleviate the symptoms of autism, have demonstrated the opposite. Research evidence may be scarce and what is available may be suspected of bias. It is clear that more research into subjects related purely to ophthalmic dispensing is required.

Getting started

Before conducting a literature review for academic or other formal purposes, it is important to invest in a recommended text* to ensure that the correct procedures are followed, the detail of which can only be touched upon here.

The first step is to think of a research question. For example:

- Is blue light damaging to human health and wellbeing?
- Do tints prescribed using colorimetry alleviate the symptoms of autism?
- Would GOS be a better than school vision screening for detecting childhood vision defects?
- Are the blepharitis products sold by opticians more effective than baby shampoo?

- Do nutritional supplements for age-related macular degeneration work?

To establish a research question, allow as much time as possible. It is useful to scan the optical journals for ideas and also register for free online services such as http://www.practiceupdate.com

* The following recommended titles were used in the compilation of this article:

1. Doing A Literature Review in Health and Social Care: A Practical Guide. 1 Jan 2014 by Helen Aveyard. ISBN: 978-0335263073
2. Systematic Approaches to a Successful Literature Review. 11 Jun 2016 by Andrew Booth, Anthea Sutton, Diana Papaioannou. ISBN: 978-1473912465
3. The Literature Review: A Step-By-Step Guide for Students. 31 Jul 2012 by Diana Ridley. ISBN: 978-1446201435

where practitioners can select topics of interest and receive regular updates of recently published work in the fields selected.

Many text books also have lists of references which can also spark ideas and books can give clarity to topic choice as they provide thorough well researched information that had been checked by the publisher for quality and content. However, the limitation of text books is that they can take several years to be published so can be out of date even before they reach the bookshelf. Beginning a search for high quality academic information can appear an overwhelming process. The internet and digital technology gives access to unimaginable volumes of information so any search needs to be navigated in a structured way to avoid losing sight of the research question.

A day-to-day search engine such as Google is useful to give an idea of the scale of the data available, however, results will likely be crowded with commercial offerings of no relevance to your question. Wikipedia can provide useful background information and as most articles are referenced it can help to refine the search. You should never rely solely on Wikipedia, as it is anonymously edited and you will need access to an academic database.

Your academic institute may give you library access to research databases such as OpenAthens or Embase otherwise you will need to utilise the search facilities of free open access academic databases such as PubMed and Google Scholar.

PubMed (https://www.ncbi.nlm.nih.gov/ pubmed) is hosted by the US National Center for Biotechnological Information, National Library for Medicine and National Institute for Health. It comprises more than 28 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

Google Scholar (https://scholar.google.co.uk/) offers the familiarity of the Google platform whilst making it easy to limit searches to academic articles or case law. Google is not a database but trawls the whole web, as such it will identify papers that may be hidden behind paywalls that are beyond your reach. This in itself may help you to refine your research question.

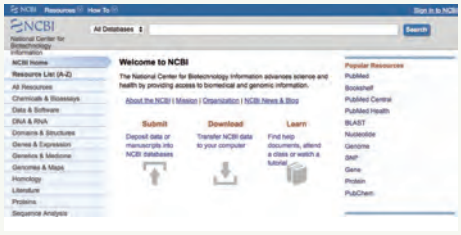
A systematic approach

To allow the most efficient use of time, it is useful to organise ideas with regard to one's literature search in a systematic way. This could be done by simply making a list, however, a Mind Map may be preferable as it is easier to make links, identify themes and see the bigger picture. Free online tools such as https://www.mindmup.com/ are very useful.

Several models may be useful to refine your research question ensuring a manageable amount of data that is neither so large it is impossible to review, nor so narrow it is insufficient. The PICO formula (Population, Intervention, Comparison, Outcome) helps to focus on forming a research question and identifying key search words. Other frameworks include SPIDER (sample, phenomenon of interest, design, evaluation, research type). Models should be used cautiously as they may restrict the search and may not always be suitable.

Refining your search

It is important to carefully select key words to accurately depict the content required for the research question as



Useful websites for your research

their combination and variety can greatly influence the results obtained. Some databases allow the use of truncation and wildcard symbols to find variations in spelling and variant word endings.

- A star * finds variant word endings, e.g. amblyop* finds amblyope, amblyopes, amblyopic, amblyopia
- A hash # finds different characters within a word, e.g. wom#n yields woman and women
- A question mark '?' inside a word replaces zero or one character, e.g. p?ediatric or colo?r and is particularly useful for searching terms that are slightly different in American English.

Other tools for refining a search, especially when there are huge amounts of data, include:

- Inverted commas ("") specify an entire phrase as opposed to a single word, e.g. "dry eye disease"
- Applying a date restriction, e.g. 2012–2018

Boolean operators are used to combine search terms and have the effect of narrowing or widening a search where there are several search terms. Basic Boolean operators such as AND, OR and NOT are usually written in capitals ensuring they are recognised by the search engine being used:

- AND – requires both the search terms to be found narrowing the search;
- OR – searches for either term widening the search;
- NOT – excludes the term which can drastically narrow a search so care must be taken as this could mean studies that are actually applicable to the search are missed

It is essential to keep a search diary, documenting databases, key words and results and acting as a guide when writing the literature review demonstrating the search was complete and meticulous. References should be recorded as they are found avoiding any being forgotten and saving time later. A folder should be created to store research material and organise articles and references or an online resource like Endnote or Mendeley could be used. It can be difficult to determine when enough data has been assembled but once searches for different terms begin to yield the same papers without adding anything of significance then this is the point to stop.

'The teachers were brilliant, happy to stay late.'

When considering the robustness of evidence, it is essential to consider the study type, its relevance to the research question, date, and if articles were peer reviewed. There is a hierarchy of evidence as follows:

- Systematic review of randomised ontrolled trials
- Randomised controlled trials (RCTs)
- Cohort studies, case controlled studies
- Surveys
- Case reports
- Qualitative studies
- Expert opinion
- Anecdotal opinion

The **CRAP** test can be applied to critically evaluate the evidence:

Currency: is it current? Determining dates in the inclusion criteria helps

Reliability: is the source reliable? If a journal is it peer reviewed? Is it published by a professional body or academic institution?

Authority: author details, qualifications have they published any other articles.

Purpose: is the publication fact or opinion, is there any bias? Did the author declare any conflicts?

Conclusion

A literature review should consider the most appropriate sources of information to answer the research question, carefully reformulating the question (perhaps with the aid of a mind map) and testing different methods to narrow or widen the search. Papers and their references should be stored in a folder, demonstrating thoroughness, and once read assessed for suitability and relevance to the research question. Only when we have reviewed the evidence should we make claims about the products we dispense, the advice we give, or the tests or treatments we carry out.

Peter Black is Senior Lecturer in Ophthalmic Dispensing at the University of Central Lancashire, Preston. He is a past president of ABDO and an ABDO practical examiner.

Degree or Diploma?

ABDO College offers a choice of two distance learning courses on the route to becoming a qualified dispensing optician.

Degree option

A two-year Foundation Degree course followed by a third year BSc Degree course in ophthalmic dispensing – leading to BSc (Hons) and the ABDO Level 6 FBDO qualifications.

Diploma option

A three-year diploma course in ophthalmic dispensing – leading to the ABDO Level 6 FBDO qualification.

Did you know?

In most cases, student finance is available to those undertaking the degree option.

Benefits of earning a degree

Studying at degree level develops transferable skills such as:

- Effective communication
- Leadership skills
- Independent thought
- Problem solving
- Report writing
- Team working
- Time management

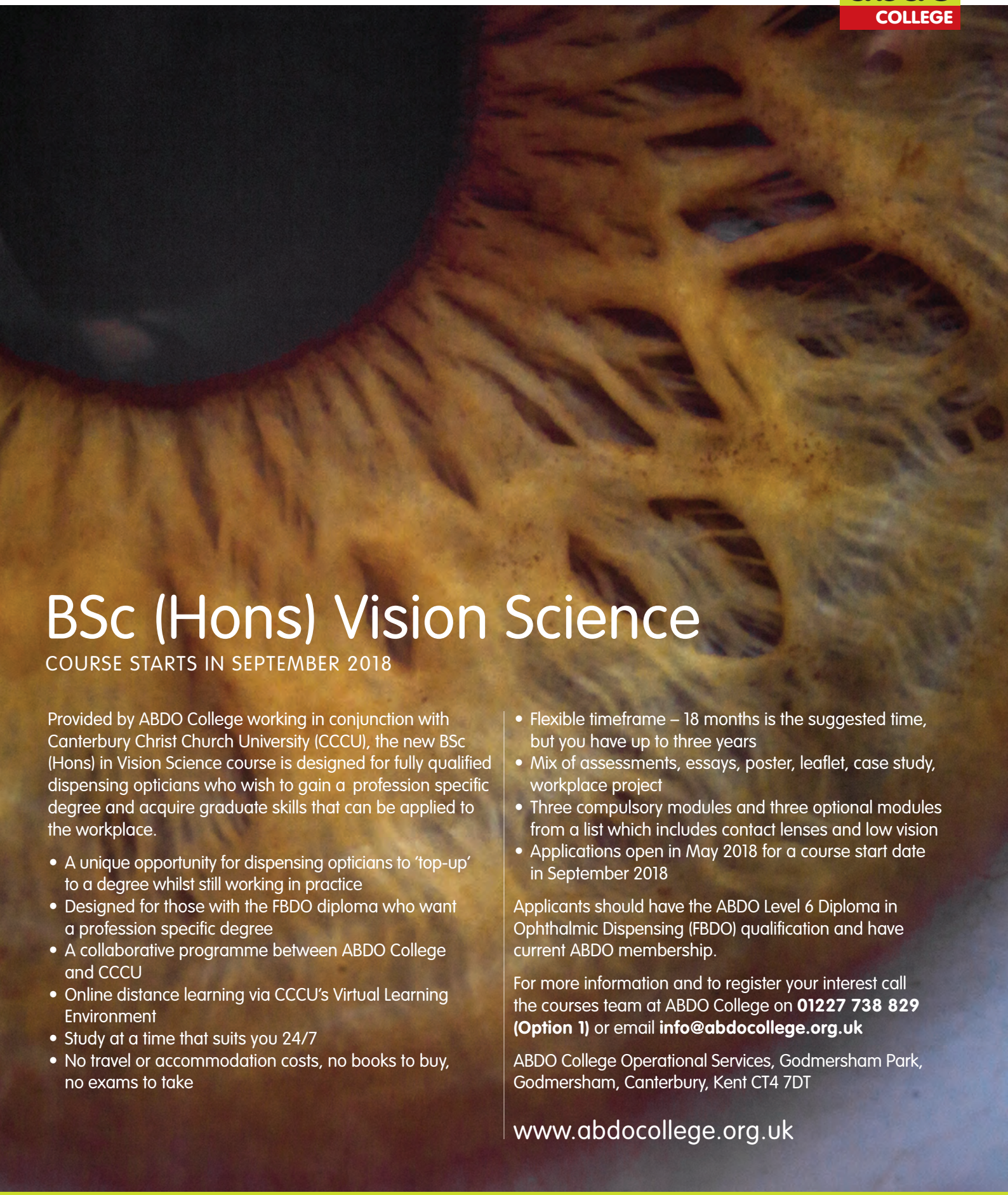
Earning a degree is a significant achievement that will have lifelong benefits – it's an opportunity to:

- Develop knowledge and expertise in a subject you enjoy
- Assist you in pursuing a career that you are passionate about
- Improve your career prospects and potentially enable you to earn more money

For more information please contact the ABDO College Courses Team on 01227 738 829 (Option 1) or email info@abdocollege.org.uk

ABDO College Operational Services, Godmersham Park, Godmersham, Canterbury, Kent CT4 7DT

www.abdocollege.org.uk



BSc (Hons) Vision Science

COURSE STARTS IN SEPTEMBER 2018

Provided by ABDO College working in conjunction with Canterbury Christ Church University (CCCU), the new BSc (Hons) in Vision Science course is designed for fully qualified dispensing opticians who wish to gain a profession specific degree and acquire graduate skills that can be applied to the workplace.

- A unique opportunity for dispensing opticians to 'top-up' to a degree whilst still working in practice
- Designed for those with the FBDO diploma who want a profession specific degree
- A collaborative programme between ABDO College and CCCU
- Online distance learning via CCCU's Virtual Learning Environment
- Study at a time that suits you 24/7
- No travel or accommodation costs, no books to buy, no exams to take
- Flexible timeframe – 18 months is the suggested time, but you have up to three years
- Mix of assessments, essays, poster, leaflet, case study, workplace project
- Three compulsory modules and three optional modules from a list which includes contact lenses and low vision
- Applications open in May 2018 for a course start date in September 2018

Applicants should have the ABDO Level 6 Diploma in Ophthalmic Dispensing (FBDO) qualification and have current ABDO membership.

For more information and to register your interest call the courses team at ABDO College on **01227 738 829 (Option 1)** or email **info@abdocollege.org.uk**

ABDO College Operational Services, Godmersham Park, Godmersham, Canterbury, Kent CT4 7DT

www.abdocollege.org.uk

KEEPING EXCELLENCE IN YOUR SIGHTS

Canterbury Christ Church University