

iSight

Quarterly Newsletter

School of Optometry & Vision Sciences



Issue: 10 March 15



Welcome & Introduction By the Head of School; Professor Marcela Votruba

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Dear Colleagues,

Welcome once again to the School newsletter. It is with great pride and a certain sense of disbelief that I realise that I have been in post for a year and three-months. I hope that the last year has been a productive and energising one. I am very proud of the many achievements of the School over the last year.

We made excellent contribution towards REF 2014. This was a piece of work that clearly involved a large number of people over a long period of time in the School, but I would particularly like to acknowledge the hard work put in by the Director of Research, Professor Andrew Quantock. I am also very grateful to all of those who contributed along the way to the writing of the Impact Case Studies, especially Dr Maggie Woodhouse, whose study was chosen as the selected Impact Case Study.

In 2015 we face a whole new series of challenges and one of these that needs a special mention is the Periodic Review of Teaching and Learning. As I have described in an e-mail to you all in the last month, I believe that this needs to be something that everyone who contributes to teaching and learning in the School takes part in. It is only by wide participation and the contribution of everyone in this area that we will come up with the best ideas and innovative ways of thinking, and explore the areas and themes that have been assigned to us by the Periodic Review Panel. I am glad to report that everything is proceeding according to a tight schedule, and that we have already organised the visits of two of our Critical Friends, who will be able to give us helpful insights into the way we are thinking about our key themes.

I hope that you enjoy reading this newsletter, and always welcome feedback, comments and ideas for future contributions.

Yours sincerely

Marcela



Grants and Papers Accepted & Published

Papers Published;

Guggenheim JA, Williams C, Northstone K, Howe LD, Tilling K, St Pourcain B, et al. Does vitamin D mediate the protective effects of time outdoors on myopia? Findings from a prospective birth cohort. *Invest Ophthalmol Vis Sci.* 2014; 55:8550-8.

Li Q, Wojciechowski R, Simpson C, Hysi P, Verhoeven VM, Ikram M, et al. Genome-wide association study for refractive astigmatism reveals genetic co-determination with spherical equivalent refractive error: the CREAM consortium. *Hum Genet.* 2015;134(2):131-46.

Mahroo OA, Williams C, Hysi PG, Williams KM, Kailani O, Thompson J, et al. Interocular Asymmetries in Axial Length and Refractive Error in 4 Cohorts. *Ophthalmol.* 2015;122(3):648-9.

Ahmed Abass, Sally Hayes, Thomas Sorensen and Keith M Meek. Transverse depth-dependent changes in corneal collagen orientation and mass density. *J Royal Society Interface.* 2015. 12 (104)

Abass A, Hayes S, White N, Sorensen T, Meek KM. Transverse depth-dependent changes in corneal collagen lamellar orientation and distribution. *J R Soc Interface.* 2015 Mar 6;12(104). pii: 20140717. doi: 10.1098/rsif.2014.0717. PMID:25631562 [PubMed - in process]

Whitford C, Studer H, Boote C, Meek KM, Elsheikh A. Biomechanical model of the human cornea: Considering shear stiffness and regional variation of collagen anisotropy and density. *J Mech Behav Biomed Mater.* 2015 Feb;42:76-87. doi: 10.1016/j.jmbbm.2014.11.006. Epub 2014 Nov 11. PMID:25460928 [PubMed - in process]

Ho LT, Harris AM, Tanioka H, Yagi N, Kinoshita S, Caterson B, Quantock AJ, Young RD, Meek KM. A comparison of glycosaminoglycan distributions, keratan sulphate sulphation patterns and collagen fibril architecture from central to peripheral regions of the bovine cornea. *Matrix Biol.* 2014 Sep;38:59-68. doi: 10.1016/j.matbio.2014.06.004. Epub 2014 Jul 11. PMID:25019467 [PubMed - in process]

Whitford, C, Studer, H, Boote, C, Meek, K, Elsheikh, A (2014) Biomechanical Model of the Human Cornea Considering Regional Variation of Collagen Fibril Anisotropy and Density, and Interlamellar Cohesion. In: *Biomechanics and Architecture of the Cornea*. Eds: Angeles del Buey Sayas, M & Peris Martinez, C., Elsevier (Sp): pp 343-357.

Pijanka JK, Spang MT, Sorensen T, Liu J, Nguyen TD, Quigley HA, Boote C. Depth-dependent changes in collagen organization in the human peripapillary sclera. *PLoS One.* 2015;10:e0118648.

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Papers recently accepted for publication;

Jones, HJ, Girard MJ, White N, Fautsch M, Morgan JE, Ethier CR, Albon J. Quantitative analysis of 3D fibrillar collagen microstructure within the normal, aged and glaucomatous human optic nerve head, accepted by *J Roy Soc Interface*.

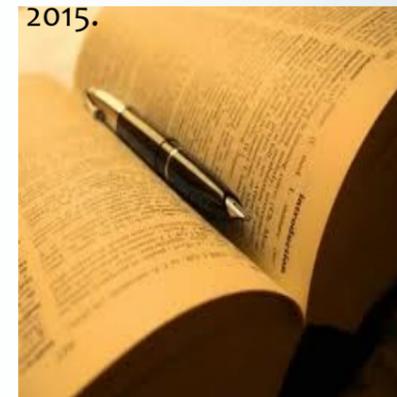
Liang Zhang, Julie Albon, Hannah Jones, Cecile L.M. Gouget, C. Ross Ethier, James C.H. Goh, and Michaël J.A. Girard. --Collagen Microstructural Factors Influencing Optic Nerve Head Biomechanics, accepted for publication in *Invest Ophthalmol Vis Sci*

Harrison JJ¹, Sumner P², Dunn MJ³, Erichsen JT³, Freeman TC⁴. Quick Phases of infantile Nystagmus Show the Saccadic Inhibition effect. *Invest Ophthalmol Vis Sci.* 2015 Feb 10. pii: IOVS-14-15655. doi: 10.1167/iovs.14-15655. [Epub ahead of print]

Grants Awarded:

i) Albon. Cardiff University Research Leave Fellowship to relieve J Albon of administrative and teaching duties for a 1 year period beginning 1st September 2015.

ii) Albon, North, Morgan, White. Fight for Sight Small grant award, £15,000 for a 7 month research project: Focal lamina cribrosa micro-regions: biomarkers for glaucomatous optic neuropathy? to be carried out by Bethany Flynn, beginning Feb 2015.





Grant Writing Weeks

In an effort to focus attention on writing grants and giving more emphasis to the activity in the School, I would like to propose the following for all individuals who are involved in writing grants, and who are on teaching and research contracts in particular. Those on T&R contracts are still also strongly encouraged to take part in the Grant Writing weeks.

Tom, Andrew and myself propose three dedicated grant writing weeks in the coming year. These would be the week commencing;

- ♦ 13th of April 2015
- ♦ 29th of June 2015
- ♦ 21st of September 2015

These three weeks have already been cleared of all School Committees and activities. The plan would be for you to dedicate these three weeks to the writing of grants, and to clear your diaries of all other non-urgent commitments, such as PhD Student meetings etc.

At the end of each week, we would meet for coffee in the coffee room at 2:30pm for a period of approximately one hour on the Friday afternoon, in order to do some networking, share ideas and discuss progress.

Everyone is aware that it is not possible to complete a grant in a week, but this should give some impetus to those grants that are in their early stages. It is clearly the case that grant writing should not be restricted to these weeks!

These three dates will be embedded in the School calendar, but I would welcome your strongest support for this new initiative and emphasise that during these weeks, it is highly important that you are still in the School so that urgent School activities can continue.

Participants Needed for Vision Research



PARTICIPANTS NEEDED FOR VISION SCIENCE RESEARCH

We are looking for healthy people (40 years or older) to participate in a study to assess retinal function using electrophysiology.

What is involved?

If you decide to volunteer for this study, we will ask you to attend 3 sessions (2 x 45 minutes and 1 x 1hr 30 minutes) which can be done separately or in combination. We will perform some simple clinical tests (e.g. visual acuity, colour vision, visual fields) and use delicate sensors to record electrical signals produced by your eyes when you look at various flashing lights and patterns.

If you can help, please contact Enyam at morneyEK@cardiff.ac.uk

Eye Clinic Update

2015 looks set to be an exciting time for the Clinic;

Pippa Venables joined the team in November 2014, as a Dispensing Optician.



Sadly, after eleven years Karen Rowland-Jones departed for sunnier climbs, leaving Eirian Hughes and Tamsin Callaghan with joint responsibility for teaching in the Clinic.

Over the past fifteen-weeks, 2047 eye examinations have been carried out (908 in Student Clinic and 1139 in the Professional Clinic). A large proportion of these patients visit the Clinic due to recommendation, or from a reminder letter. However, there is still a huge audience that could benefit from the excellent service that the Clinic provides.

At the end of November 2014, we enlisted the services of Patrick Myers who is an acknowledged expert in Marketing and Management. Patrick visited the Clinic to carry out a Practice Health Check, which consisted of information gathering and observation. The result was a thirty-two point action plan to be carried out during 2015. Nineteen of the thirty-two action points can be remedied at no cost.

Patrick estimates that the investment from the other thirteen points will be re-paid four-fold. I look forward to giving you regular updates over the coming months.

Helen Morris
Clinic Practice Manager



Congratulations Prof. Quantock

To; Professor Andrew Quantock who has recently been appointed to the Editorial Board of a journal called Scientific Reports.



Scientific Reports is an online, open access journal from the publishers of Nature, which publishes primary research from all areas of the natural and clinical sciences.

The 2013 Impact Factor for Scientific reports is 5.078, according to the 2013 Journal Citation Reports® Science Edition (Thomson Reuters, 2014), which places it 5th among all multidisciplinary science primary research journals.

New Appointment of Senior Lecturer; Dr Tony Redmond



“I am delighted to be taking up the post of Senior Lecturer in June this year. In addition to leading my own research team, a new role will be to manage the new Master of Research (MRes) programme in OPTOM. The programme will combine the strengths of our PGT and PGR programmes, and will present an exciting opportunity for students to learn and develop skills in clinical and/or basic science research, under the supervision of our academic staff. The structure of the MRes will also provide academic staff with an excellent opportunity to recruit new and enthusiastic research students on a short-term basis, in the knowledge that production of a publishable manuscript (or similar) will form part of the student’s assessment. I am very excited to lead the new programme in OPTOM and look forward to working more closely with each of my colleagues”.



University Research Leave Fellowship
2015/16 awarded to
Dr Julie Albon

Well Done..... Dr Alina Akhbanbetova

As part of the UK Government's Newton Fund, the British Council and JSC Science Fund are collaborating on a new five-year programme, the Newton-Al-Farabi Partnership Programme, to encourage international research collaboration between scientists from the UK and Kazakhstan. As part of this programme to unite early career researchers and help them build international relationships, OPTOM are delighted that Dr Alina Akhbanbetova, now in the second year of her PhD, has been selected as one of only fifteen young scientists from across the UK to attend the British Council Research Links workshop, Regenerative Medicine for Lifelong Health and Wellbeing, which will be held in Nazarbayev University, Astana, Kazakhstan, 19-23rd April 2015. The selected group is nicely diverse, ranging from chemists and material scientists through to cell and molecular biologists and clinicians. Alina's first degree is medicine, followed by an M.Phil. in Biomedical Sciences, and her PhD topic is a study of the corneal endothelium in health and disease.

The workshop in Astana will focus on the interface between regenerative medicine/tissue engineering and the biology of ageing and age-related diseases. It will explore both how regenerative medicine approaches can be applied to the diseases and degenerations of later life, together with a consideration of the biology of aged tissue that provides the context for (and the driver of) such regenerative medicine approaches.

During the workshop Alina will have the opportunity to present her research in the form of a short oral presentation followed by a discussion with established researchers from UK and Kazakhstan. An important part of the event is to explore areas of potential future co-working between participants, and there will be a strong focus on building links for future collaborations. So, hopefully, OPTOM's international portfolio of connections will be enhanced as a result of Alina's visit and we wish her well.

In December, I was delighted to be notified that my application for a one year University Research Leave Fellowship was successful. This fellowship is a highly competitive, prestigious award which is institutionally funded and open to researchers throughout the University. The scheme is one of the University's activities to support the Research, Innovation and Enterprise Way Forward 2012-2017, with an aim to help strengthen the research environment and to promote research excellence with impact.

The award allows me to be relieved of teaching and administrative commitments, so that I can undertake research focussed on promoting research excellence with impact. My period of research will begin on the 1st September 2015. I am hoping that this time will establish myself, and the School, as unique in the UK, in that my research is aimed at investigating human lamina cribrosa microstructure as a function of ageing and glaucoma, in both the *in vivo* and *ex vivo* optic nerve head.

We have current results which are novel and at the forefront of this research area, and I hope that I can now capitalise on this. To this end, I will use this fellowship to investigate new avenues of research that will enable me to translate current basic scientific research data into the clinic setting. In doing this I will explore and investigate new methods of analysis of human lamina cribrosa microstructure. Additionally, the time will allow me to update my current skillset and knowledge base both within this research area and across disciplines, and to develop collaborations to enable multidisciplinary research.

Julie Albon



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it's a Girl!

Congratulations —New Babies

Staff Birthdays

January
Allannah Gaffney

June
Jennifer Acton
Anna Taylor

October
Keith Meek
Maggie Woodhouse
Terry Smith

February
Judith Colwill
Stephen Johns
Jon Baston

July
Emma Daniel-Davies
Sue Hobbs
Rod Woodhouse

November
Kirsten Hamilton-Maxwell
Sharon Leaves

March
Ceri Goodman
Helen Morris
Katie Mortlock
Jane Powell

August
Richard Earlam
Lucy Grant

December
Fliss Brooks
Stephanie Pulman

April
Karen Rowland-Jones
Barbara Ryan

September
Megan De-Witt
Jon Erichsen
Su Jenkins
Allyson Treharne
Marcela Votruba

May
Sasha Macken



Congratulations to **Allannah (Gaffney)** and **Amar** on the birth of their baby daughter "Ariana Jayne Shah".

Ariana was born on Saturday the 7th of March 2015, weighing 6lb 12.5oz. Mum and baby are both well.



Congratulations to **Phil (Booth)** and fiancé **Courtney** on the birth of their baby daughter ; **Gracie Elizabeth Booth**. Born at 10:05pm on Tuesday the 24th of March 2015, weighing 7lb 15.5oz.

Mum and baby (and Dad) are doing well.



Congratulations.....

Stefan Bandlitz; Successfully defended his thesis on Wednesday the 18th of February 2015.

Sachiko Nishimura; Successfully defended her MPhil thesis on Friday the 6th of March 2015.

Caroline Waters; Successfully defended her thesis on Wednesday the 11th of March 2015.

Welcome: New Postgraduate Research Student

We welcome **Rupal Shah**, who joined us in April after transferring from the School of Optometry at Hong Kong Polytechnic University, where she began her PhD last Autumn.

Rupal is carrying out a statistical genetics project entitled 'Discover of genetic determinants for refractive error', under the supervision of Prof. Jez Guggenheim and Prof. Marcela Votruba, which involves the analysis of vast datasets of genetic variants as part of the CREAM consortium. Rupal is a qualified Optometrist who graduated from Cardiff University in 2008 and who has since completed an MSc in Neuroscience from UCL. Her hobbies include analysis complex traits using linear mixed models to jointly account for genetic relatedness and population stratification, and collection passport stamps.



Welcome: Newly Appointed Research Associate

Welcome to James Bell a newly appointed Research Associate working for Keith Meek on a two-year project in the Structural Biophysics theme. James will focus on elucidating the relationship between the composition and mechanical properties of the human cornea at a microscopic scale, with the aim of better understanding micromechanical changes associated with disease and treatment.

James is originally from the University of Exeter, where he worked for Peter Winlove in the biophysics group.

James's background is in mechanical testing and modelling, multiphoton microscopy and Raman spectroscopy. He has worked with a range of tissues including cartilage, blood vessels, chordae tendineae and kidney."



INHERITED EYE DISEASE PATENT DAY
Friday 9th January 2015
Main Lecture Theatre
School of Optometry & Vision Sciences

The Patient Day was a great success with over fifty patients with Inherited Eye Disease attending, and representatives from RP Fighting blindness, Sight Cymru, RB Society, RNIB, Patrick Watts, Consultant Ophthalmologist UHW, Prof. Daniela Pilz; Institute of Medical Genetics UHW.

The meeting has been an immense boost to those patients who are keen to get together to form a Patient Support Group, for both support and lobbying. So far the group has met in February and March 2015 and a small number of key people have started putting together a Patient Support Group with the generous backing of the Rare Disease Alliance.

Hopefully the group will go from strength to strength and is an excellent new initiative!

Marcela Votruba

Patient Quotable Quotes;

“From the conversations I have had with those who attended the day in Cardiff, it is great to see the interest that has been generated for moving the group forward, and I would love to be part of that. Rare Disease can be a lonely place”

“Thank you, the afternoon was very interesting and informative, and the networking opportunities are good”

“Very good, well set out and structured. I thought that information giving was very interesting and knowledgeable.”

“Excellent information given, useful for both patients with eye problems/vision loss and their families”





Easy Dinners

Cheat's Chicken Kiev

Ingredients;

6x garlic cloves, 2 peeled
Small bunch flat-leaf parsley
85g fresh breadcrumbs
4 skinless boneless chicken breasts
4 tbsp garlic & herb soft cheese
Plus; 4x tsp olive oil

Method;

1. Heat oven to 200c/180c Fan / Gas 6.
2. Whizz together the 2 peeled garlic gloves, parsley & 1x tsp olive oil in a food processor.
3. Add the breadcrumbs and seasoning before pulsing briefly to mix.
4. Tip onto a plate
5. Cut a slit (roughly thumb length) in the side of each chicken breast, at the plump end. Spoon 1/4 of the soft cheese into each hole and press the edges together to seal. Rub 2 tsp oil over all the chicken breasts before pressing the herby crumbs onto them.
6. Place the coated chicken in a shallow roasting tin.
7. Scatter round the remaining unpeeled garlic cloves and drizzle with the rest of the oil.
8. Bake for 20—25 mins until the chicken is cooked and the crumbs are crisp and golden.
9. Squeeze out the soft, roasted garlic from the skins and serve with the chicken

Not Just for Students

Easy Beef Stew

Ingredients;

1 tbsp olive oil
2x carrots, finely diced
2x fat cloves garlic, crushed
1tsp ground cinnamon
2x tbsp tomato puree
1x 25g pack parsley, stalks and leaves finely chopped separately
1kg sweet potatoes, peeled and diced
Handful grated cheddar cheese

1x onion, finely chopped
1-2 sticks celery, finely diced
400-500g braising steak
1x low-salt beef stock cube
Knob of butter

Method;

1. Heat the olive oil in a heavy-based pan. Add the onions and cook for 2 minutes, then add the carrot and celery and cook until softened. Add a little water if the mixture sticks.
2. Add the braising steak and cook until browned, then stir in the garlic and cinnamon and cook for a further 1-2 mins until the aromas are released.
3. Add the stock-cube to 500ml boiling water and stir into the meat, along with the tomato puree and parsley stalks. Bring to the boil and simmer covered for 1x hour, then take off the lid and simmer for another hour or until the meat is very tender. Stir in the chopped parsley leaves.
4. Transfer the stew into a medium-sized ceramic dish (that would be big enough for 4x adults)
5. Meanwhile, steam or boil the sweet potatoes until tender. Preheat the oven to 200C/180C fan/gas mark 6.
6. Drain the potatoes well and mash with the butter. Spoon on top of the meat, sprinkle with the cheese and cook on the top shelf for around 20 mins until golden and bubbling.



Crossword Fun

1	2	3	4	5		6	7	8		9	10	11
12						13				14		
15						16			17			
18					19				20			
			21	22				23				
24	25	26							27	28	29	
30								31	32			
33				34	35	36	37					
		38	39									
40	41				42				43	44	45	46
47				48				49				
50				51				52				
53				54				55				

Across:

1. Legendary Stories
6. Uno
9. Pig's pad
12. Box
13. Business VIP
14. Pitching Stat
15. Church walkway
16. Burst of Bad Temper
18. California Wine Valley
19. Make Lace
20. Epochs
21. Caveman's Era (2 words)
24. Concurrence
27. Time Past
30. _____ Witherspoon of "Sweet Home Alabama"
31. Had
33. And so forth (abbr.)
34. Proposed as a candidate
38. Renovator
40. Pub Drinks
42. Shade
47. Childhood Disease
50. Bathroom rug
51. Tax Org
52. _____ Eclipse
53. Lyric Verse
54. Compass Dir.
55. Printing Machine

Down:

1. Skim over
2. Opera solo
3. Struggle for breathe
4. Books of maps
5. Behold
6. Gasoline classification
7. Tidy up
8. Chunk of Eternity
9. Military Rank
10. Faithful
11. Sweet Potatoes
17. Children's Game
19. Actor _____ Hanks
22. Adolescents
23. Make Amends
24. Common verb
25. Acquire
26. Make again
28. Goodness
29. Strange
32. Soldier
35. Additional ones
36. Styling foam
37. Wrath
39. Highway Curve
40. Military Supplies
41. Show the Way
44. Leer
45. Oceans

Down:

46. Miscalculates
48. Recline
49. Recipe Unit (abbr.)