



THE UNIVERSITY OF  
MELBOURNE

# Department of Optometry and Vision Sciences Newsletter

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## Head's Report

2020 has certainly not been what we expected! I'd like to sincerely thank our students and staff for the level of initiative shown to create a different but highly meaningful teaching experience in the current circumstances. Since mid-March, all our lectures and tutorial classes have been conducted online. With the exception of the initial national shut-down, students have been attending for critical face-to-face clinical simulation classes and clinical training. We have all learnt a lot about infection control and occupational health and safety procedures. We have also had wonderful support from our optometry and ophthalmology colleagues outside the university sector who have offered their time to provide Zoom tutorials in areas of clinical expertise. A huge thank you for sharing your expertise with our student community. This includes many of our international partners, who have shared their current experiences of "eyecare during COVID". I encourage you to read our "Teaching Matters" section for further details of our pivoted teaching program and 2020 student experience.

To add to the mix in 2020, in May-June we relocated buildings, and now have the clinic and preclinical facilities up and running at 200 Berkeley St, Carlton. Our offices are still full of cardboard boxes as we continue to work from home with the exception of critical teaching and research activities. I encourage you to visit as soon as pandemic conditions permit.

After 7 years as Head of Department, I will be stepping out of the role on March 1<sup>st</sup> 2021. The next Head of Department will be Associate Professor Andrew Metha, who is currently in the role of Deputy Head. I would like to take the opportunity to personally thank everyone for your support during my term as Head of Department and look forward to continuing to work with you all in the future.

### Contact:

If you have any suggestions or items for the next newsletter, please contact our editor: Tom Cougan

### Address:

tcougan@unimelb.edu.au



The new preclinical simulation facility at 200 Berkeley St, Carlton.

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## Department News

### NHMRC Investigator Grant Success

The Department would like to congratulate Dr Lauren Ayton of the Department of Optometry and Vision Sciences on her award of an NHMRC Investigator grant. The funding allows Dr Ayton to bring her research in “Saving Sight Through Novel BioTech Innovations for Inherited Retinal Disease” to life over five years.

This highly competitive program will provide over \$1.5M of funding to Dr Ayton’s program, enabling her to further her research into inherited retinal disease (IRD).

The project will build a clinical research database of people with IRD, discover more about the links between genes and eye disease, develop new outcome measures to be used in clinical trials, and support world-first clinical trials for IRD in Australia.

This research program has four main goals:

1. To generate essential natural history data on the progression of IRDs, in order to assist with patient selection and assessment in clinical trials
2. To investigate the genomic correlations with disease pathogenesis and response to clinical therapies;
3. To continue internationally leading work in the development and validation of novel outcome measures for use in IRD clinical trials
4. To lead the clinical assessments in locally developed IRD treatments, including a gene therapy clinical trial.



### University of Melbourne Excellence Awards

The Department’s Associate Professors Michael Pianta and Laura Downie have been recognised through the University’s Excellence Awards for their work developing CrowdCARE (Crowdsourcing Critical Appraisal of Research Evidence). The CrowdCARE team was awarded the Norman Curry Award for Innovation and Excellence in Educational Programs for developing the online platform. CrowdCARE aims to teach users research critical appraisal skills and improve their enquiry-based learning and practice.

Created by a team of professionals who in addition to the academic team leads, include Mr Gordon Yau, Mr David Vasjuta and Mr Gavin Leys from Learning Environments, CrowdCARE is believed to be the first platform of its kind worldwide. It involves trained, crowdsourced users including students,

academic experts and health practitioners contributing to an evolving appraised evidence database; this contrasts with other discipline-specific evidence databases that instead rely on paid experts to perform this task.

Currently, CrowdCARE has over 1,460 users across more than 20 countries and is quickly gaining a reputation worldwide as an easy to navigate and impactful teaching and learning resource. Free to make an account online, the platform has been designed for accessibility with a simple display and gamification through leader boards and badges. After completing an introductory training tutorial online, users are ready to begin their practical learning through active participation and peer interaction.

To make your free account and find about more please visit: [www.crowdcare.unimelb.edu.au](http://www.crowdcare.unimelb.edu.au)



## NHMRC Development Grant awarded to Associate Professor Laura Downie for dry eye innovation

Congratulations to Associate Professor Downie on her 2020 NHMRC Development Grant. The NHMRC has awarded a three-year grant of over \$750 000 to A/Prof Downie and her team of associates, RMIT Professor Leslie Yeo, UoM Associate Dean of Innovation and Enterprise Professor Darren Kelly and UoM Director of Research and Enterprise Development Doctor Heather St John, to fund the ADMiER project. The team are also receiving continuing business development and commercialisation support from Doctor Ruth Park-Jones. ADMiER is an innovative device that seeks to transform the clinical diagnosis of dry eye by providing an accurate, time-efficient and non-invasive point of care test.



## 50-year anniversary

The Department of Optometry and Vision Sciences at Melbourne will celebrate its 50th anniversary in 2023, and is asking former students to contribute stories, photos and other memorabilia to enable recognition of all 50 years of the Department of Optometry at the University. We are seeking optometrists to tell a brief story from each graduating class - one story per week for 50 weeks in 2023. Interested alumni can email stories, photos, copies of covers of student magazines, or student society t-shirts to Bang Bui at [bvb@unimelb.edu.au](mailto:bvb@unimelb.edu.au) or Allison McKendrick [allisonm@unimelb.edu.au](mailto:allisonm@unimelb.edu.au)



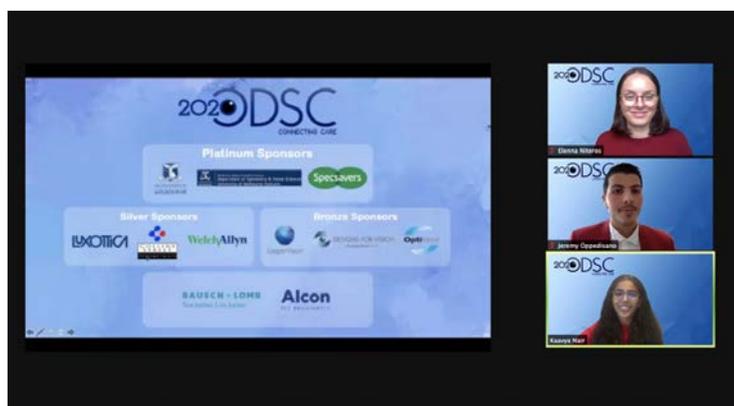
## Student News

### 2020 Doctor of Optometry Student Conference (ODSC)

The 2020 Doctor of Optometry Student Conference (ODSC) was held on 17th and 18th September and this year, due to COVID-19 restrictions, was held online for the first time. Under these unique circumstances, the student convenors and their committee put together a fantastic program of educational presentations and social activities under the theme "Connecting Care". Presentations included topics such as: collaborative care, indigenous health, mental health, ageing, business and marketing, as well as panel discussions on research and patient cases, and ending with the much-anticipated annual staff debate on the topic of "Optometry is an essential service"! The limitations of the conference being online led the organisers to think of new ways of ensuring all students and staff were engaged. Attendees could choose to be involved in dance classes, cooking classes, competitions, and an engagement leaderboard, where points were given for being active, social media interaction, and asking questions of speakers and sponsors.

A huge thank you to this year's convenors, Elenna Niteros, Jeremy Oppedisano and Kaavya Nair, and their organising committee, for putting together such an inspiring and educational conference, which brought together students from all years of the OD course and staff and at a time where connection across the student cohort is more important than ever. Additional thanks also to all the sponsors and guest speakers for their support of the event.

More information about the ODSC can be found on the conference website: [www.odsc2020.com](http://www.odsc2020.com)



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# Teaching Matters

## COVID -19 and its effect on our Teaching program

Friday 13 March was the date when the first staff member at the University of Melbourne (not from Optometry and Vision Sciences) tested positive for COVID-19. We had started our Overseas Externship Program for 2020 and had just confirmed placements for all 74 final year students. Nine final year students had been in India and Nepal for two weeks of their four week placement and we decide to call them home. Students who had been in Vellore, India ended up having to fly from Bangalore to Abu Dhabi to get home to Australia after flights through Malaysia, Sri Lanka and Singapore were all cancelled. Our students arrived in Melbourne safely just before the Hotel quarantine program started.



On 16 March all lectures move to online delivery but tutorial groups of 25 (preclinical classes) and clinical placements continued. By Friday 20 March we have stopped all rural placements. By Tuesday 24 March the Australian College of Optometry and Melbourne EyeCare Clinics cease student clinical placements and staff pack up their belongings and leave campus ready to teach online.

We have 8 weeks without a single clinical placement for our students in final year. Zoom Case Studies are born. These are cases based on real patient cases from our Clinic. Teaching staff run via Zoom 90-minute patient cases in groups of 6-7 students. We are relieved that we teach in year-long subjects and commence the year early (late January) so that our students have at least some clinical experience (combined with their patient encounters in their third year of study) to understand these virtual case studies. Our preclinic moves to its new location on Level 1 at 200 Berkeley St and our Clinic opens in this new location on the ground floor.

On Monday 25 May the Australian College of Optometry allows students to return in a limited capacity. On Thursday 11 June students are allowed to return to our own Clinic and to our Preclinic space to reskill themselves. We begin to talk to other placement partners about how the new normal might look for them and whether they can accommodate clinical placements. A small number of external providers including Specsavers and independent practices manage placements for our final years where they can.

Winter semester provides an opportunity for OD2 students and OD3 students to return to practice clinical skills in our Preclinic. COVID-19 cases start to rise and just as Semester 2 commences, Victoria goes into Stage 4 lockdown. Thankfully clinical teaching is allowed to continue so our OD2 OD3 and OD4 students continue to come to campus in small segregated groups for Clinical and critical clinical simulation training. Students cease placements at all other sites although placements at the Australian College of Optometry get up and running again after a short break. As this newsletter is written we look forward to the easing of restrictions. All teaching that can remain online will stay that way for the rest of Semester 2, but we look toward increased clinical exposures for our final year students as restrictions ease. It has not been the teaching year that we expected!

## New Teaching Spaces on Level 1 200 Berkeley St

During April/May as the Department moved to our new Building our new Preclinic and Practical laboratory teaching spaces were set up on Level 1. In the Preclinic space some new slit lamps with teaching scopes have been installed. The space includes a dedicated break-out room and space for auxiliary equipment and a large storage space. The new Prac space is shown right.



## Connections with Overseas partners continues via Zoom webinars

Staff and students have learnt lots about the use of Zoom over the last 6 months. Although our Overseas Externship program has been unable to continue Webinars have been held with Dr Jim Thimons from Connecticut in The United States of America, Dr Shonraj and Dr Ramesh Sve from Manipal Academy of Higher Education in India and a seminar exchange for final year and higher degree students has commenced with Hong Kong Polytechnic University. These sessions keep our overseas connections alive at a time when we are unable to visit.



## Interprofessional Education Facilitator Training for Optometry Educators

The Faculty of Medicine Dentistry and Health Sciences is pushing forward with an increased prominence of Interprofessional Education in its programs by running Interprofessional Education Facilitator Training for staff across the Faculty. This training is being run by the Centre for Advancement of Interprofessional Education(CAIBE) in the UK. The Optometry Department is fortunate to have four staff – Bao Nguyen Christine Nguyen Jonathan Ng and Anthea Cochrane participating in this program to improve teaching and promoting Optometry in the Faculty at the same time.

## Alumni

### Alumnus Award 2020

Congratulations to Dr Carol Lakkis our 2020 Alumnus Award winner. Carol has made outstanding contributions to Optometry in Australia and internationally. She has represented and led the profession in a range of roles. She completed her PhD degree at the University of Melbourne in 1999. She worked also as Assistant Clinical Professor and Research Scientist in the School of Optometry at the University of California, Berkeley with Professor Suzanne Fleiszig. She was appointed to the position of Director of Research of Clinical Vision Research Australia in 2002, a Division of the Australian College of Optometry. In 2010 she became head of applied clinical sciences within the contact lens research and development group at Johnson & Johnson Vision. She is an adjunct professor at the University of Houston as well as Director of iBiomedical Consulting (Jacksonville, Florida). She has made significant contributions to growing knowledge of contact lens-related infection and inflammation, disinfection and discomfort and the therapeutic management of ocular diseases. She continues to be a passionate advocate of eye health and eye safety. Thank you, Carol, for all your efforts.



### Inspiring Student Award

Congratulations to Shehna Wala our OD student Award winner. Wala is recognised for her excellent and sustained volunteer activities. In particular, she has given generously of her time over the past 4 years to bring comfort and companionship to those in hospital through her role as a ward assistant. She has gone on a train many others to do a similar role at the Royal Melbourne Hospital. Her numerous hours have helped to ease the hospital experience for many, but Wala reflects that they have greatly enriched her development as a health care practitioner. Thank you, Wala, for your wonderful efforts and thank you to Collins Streets Optometrist for their sponsorship of the award.



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# Seeing Beyond Lecture Series

## Seeing Beyond Lecture: May

Thank you to those who joined us for our Seeing Beyond Webinar on Wednesday May 27<sup>th</sup>. This event was our first “virtual” Seeing Beyond Lecture with over 260 people logging into the session that focussed on the future and current assessments of visual function for glaucoma. It was great to see many of our Optometry Australia colleagues and friends from all around the world participating from their homes. A big thank you to our presenters: Professor Allison McKendrick and Doctor Flora Hui. Allison presented on Perimetry and the role of patient opinion while Flora discussed changes to how ganglion cells function and whether they can be supported despite disease.

## Seeing Beyond Lecture Series October 2020: Corneal Neuro-Immunology - Are social distancing measures between nerves and immune cells important for a healthy cornea?

**When:** Wednesday 21st October 2020

**Guest speakers:** Dr Holly Chinnery and A/Prof Mark Roth OAM, from the Department of Optometry and Vision Sciences

**Time:** 6.30pm – 8.00pm

**Location:** Zoom

**CPD points:** 6 therapeutic points

**Registration link:** <http://go.unimelb.edu.au/753j>

### Presenters

#### Dr Holly Chinnery

Dr Holly Chinnery is a Senior Lecturer in the Department of Optometry and Vision Sciences, where she heads the Corneal and Ocular Immunology Laboratory. Her team’s current research focus is on understanding how the corneal nervous and immunological systems interact in the context of homeostasis, inflammation, injury and neurodegenerative diseases. Her pre-clinical, fundamental research studies using mouse models are designed to closely mimic conditions affecting the human ocular surface.



#### Associate Professor Mark Roth

Associate Professor Mark Roth FAAO OAM is a clinical optometrist with a degree in pharmacology. He is currently in private practice and since 2008 has been a principal fellow in the Department of Optometry and Vision Sciences, The University of Melbourne. Mark has extensive experience as a therapeutic practitioner and in therapeutics education. His main areas of interest are clinical ocular therapeutics, contact lens problem solving, clinical therapeutics education and ocular photography. In 2017 he received an Order of Australia, OAM for services to therapeutic optometry.



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## Melbourne Eyecare Clinic (MEC, formally UMeyecare)

It will come as no surprise to all the primary care practitioners that the last few months have created ups and downs in operations in the new Eyecare clinic at 200 Berkeley Street. The clinical space is fantastic. The combined input from the group of the architects, University project group and my fellow staff, have been able to take what was a large rectangular space and turn it into a functional, welcoming and adaptable clinical teaching facility.

Sadly, we cannot invite you in to have a look, but we do have a virtual tour you can go on. Go to the website for open day <https://study.unimelb.edu.au/your-experience/virtual-tour>. Navigate to the health tab by skipping the videos and then choose the Eyecare clinic.

You can then take a tour similar to using StreetView in GoogleMaps. Except for one day, the clinic has been operating all through the pandemic as the University has seen us as an essential service. We have also been able to have students onsite for most of the year. Patients have been very appreciative of our willingness to provide emergency eyecare during these trying times. Students have also been able to take part in a variety of telehealth consultations within the clinic.

As a consequence of the pandemic, the clinic patient numbers have been down compared to previous years. With the Lockdown rules easing we are extending the clinical teaching year till early December to give our final year students as wide a clinical experience as we are able to. We look forward to next year where we can consolidate our new facility in providing care, teaching and clinical research in better times.



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## Publications

**DOVS publications appearing in PubMed over the March 2020 - August 2020 period**

### **Mechanisms of Feature Selectivity and Invariance in Primary Visual Cortex**

Almasi A, Meffin H, Cloherty SL, Wong Y, Yunzab M, Ibbotson MR.

Cereb Cortex. 2020 Jul 30;30(9):5067-5087.

*As signals progress through the hierarchy of visual processing, feature selectivity and invariance increase simultaneously (e.g. increased selectivity for edges but invariance to their orientation). This paper investigates this conundrum.*

## **Recurrent Optic Disc Hemorrhage and Its Association with Visual Field Deterioration in Glaucoma**

An D, House P, Barry C, Turpin A, McKendrick AM, Chauhan BC, Manners S, Graham S, Yu DY, Morgan WH.

Ophthalmol Glaucoma. 2020 Jun 9:S2589-4196(20)30162-9.

*Patients with POAG were followed every 3 months for 5 years. Recurrent optic disc hemorrhage (ODH) correlated with faster visual field defect progression. The incidence of ODH was 45%.*

## **A Temporal Sampling Basis for Visual Processing in Developmental Dyslexia**

Archer K, Pammer K, Vidyasagar TR.

Front Hum Neurosci. 2020 Jul 8;14:213.

*This paper suggests that reading depends upon sampling of visual information between cortical areas at specific temporal frequencies along the dorsal cortical stream. This process may be disrupted in dyslexia.*

## **An update on retinal prostheses**

Ayton LN, Barnes N, Dagnelie G, Fujikado T, Goetz G, Hornig R, Jones BW, Muqit MMK, Rathbun DL, Stingl K, Weiland JD, Petoe MA.

Clin Neurophysiol. 2020 Jun;131(6):1383-1398.

*This invited review provides a comprehensive review of retinal prostheses (bionic eyes), including a description of current technologies and a discussion of the challenges that face developers.*

## **Harmonization of Outcomes and Vision Endpoints in Vision Restoration Trials: Recommendations from the International HOVER Taskforce**

Ayton LN, Rizzo JF 3rd, Bailey IL, Colenbrander A, Dagnelie G, Geruschat DR, Hessburg PC, McCarthy CD, Petoe MA, Rubin GS, Troyk PR; HOVER International Taskforce.

Transl Vis Sci Technol. 2020 Jul 16;9(8):25.

*Over 80 international experts form the HOVER taskforce, led by Dr Ayton. These guidelines outline how to measure and report outcomes in trials of bionic eyes, gene therapy, stem cells and other vision restoration therapies.*

## **Are you sure? The relationship between response certainty and performance in visual detection using a perimetry-style task**

Bedggood P, Ahmad A, Chen A, Lim R, Maqsudi S, Metha A.

J Vis. 2020 Aug 3;20(8):27. doi: 10.1167/jov.20.8.27.

*In visual field testing, the confidence associated with each button press is an untapped source of information. We show that giving patients a button to indicate "certain" could reduce test times by 40%.*

## **Recovering the appearance of the capillary blood column from under-sampled flow data**

Bedggood P, Metha A.

Opt Lett. 2020 Aug 1;45(15):4320-4323.

*Adaptive optics allows the tracking of individual cells through retinal capillaries. However, cells moving too quickly are lost. We present a method to recover previously unrecoverable cell trajectories, allowing most cells to be tracked.*

## **Tyro3 Contributes to Retinal Ganglion Cell Function, Survival and Dendritic Density in the Mouse Retina**

Blades F, Wong VHY, Nguyen CTO, Bui BV, Kilpatrick TJ, Binder MD.

Front Neurosci. 2020 Aug 14;14:840.

*Tyro3 is a member of the TAM family, receptors that play essential roles in phagocytosis, cell survival and immune homeostasis. This study shows for the first time that Tyro3 modulates retinal function, ganglion cell morphology and survival.*

## **Tunneling Nanotubes and the Eye: Intercellular Communication and Implications for Ocular Health and Disease**

Chinnery HR, Keller KE.

Biomed Res Int. 2020 Apr 8;2020:7246785.

*Tunneling nanotubes are long, thin, membranous structures that enable cellular communication. This review summarises current evidence of tunneling nanotube-mediated communication in ocular cells and tissues during development and disease.*

## **In vivo immune cell dynamics in the human cornea**

Colorado LH, Edwards K, Chinnery HR, Bazan HE.

Exp Eye Res. 2020 Aug 23;199:108168.

*Dynamic imaging of corneal immune cells was performed in the living human eye. This novel method provides a foundation to significantly advance the understanding of the human immune system in vivo.*

## **Intense pulsed light (IPL) therapy for the treatment of meibomian gland dysfunction**

Cote S, Zhang AC, Ahmadzai V, Maleken A, Li C, Oppedisano J, Nair K, Busija L, Downie LE.

Cochrane Database Syst Rev. 2020 Mar 18;3(3):CD013559.

*This systematic review identified few high-quality studies evaluating the safety or efficacy of IPL therapy for meibomian gland dysfunction. This finding is highly relevant to clinicians considering using this intervention.*

## **Knowledge, perspectives and clinical practices of Australian optometrists in relation to childhood myopia**

Douglass A, Keller PR, He M, Downie LE.

Clin Exp Optom. 2020 Mar;103(2):155-166.

*This survey of Australian optometrists found that current clinical practices related to childhood myopia management largely reflect the inconclusive nature of several key aspects of the evidence.*

## **Blocking endothelial apoptosis revascularizes the retina in a model of ischemic retinopathy**

Grant ZL, Whitehead L, Wong VH, He Z, Yan RY, Miles AR, Benest AV, Bates DO, Prahst C, Bentley K, Bui BV, Symons RC, Coultas L.

J Clin Invest. 2020 Aug 3;130(8):4235-4251.

*Ischemia causes apoptosis of endothelial cells. If apoptosis can be reduced then the endothelial cells preserved within ischemic tissue have capacity to reassemble a functional blood vessel network.*

## **Age-Specific Retinal and Cerebral Immunodetection of Amyloid- $\beta$ Plaques and Oligomers in a Rodent Model of Alzheimer's Disease**

Habiba U, Merlin S, Lim JKH, Wong VHY, Nguyen CTO, Morley JW, Bui BV, Tayebi M.

J Alzheimers Dis. 2020;76(3):1135-1150.

*There is evidence of retinal amyloid beta plaque disposition in the retina in Alzheimer's disease (AD). In an animal model of AD we provide evidence that soluble amyloid beta is converted to A $\beta$  plaques in ageing eyes.*

## **Illusory Motion Perception Is Associated with Contrast Discrimination but Not Motion Sensitivity, Self-Reported Visual Discomfort, or Migraine Status**

He C, Nguyen BN, Chan YM, McKendrick AM.

Invest Ophthalmol Vis Sci. 2020 Jul 1;61(8):43.

*People with migraine report experiencing visual discomfort frequently. Self-reported visual discomfort did not relate to quantified motion illusion strength. Motion illusion strength did relate to contrast discrimination ability.*

## **Novel alterations in corneal neuroimmune phenotypes in mice with central nervous system tauopathy**

Jiao H, Downie LE, Huang X, Wu M, Oberrauch S, Keenan RJ, Jacobson LH, Chinnery HR.

J Neuroinflammation. 2020 Apr 28;17(1):136.

*Corneal dendritic cells and nerve morphology were altered in a mouse model of central nervous system tauopathy. Activation of corneal dendritic cells indicates a potential ocular manifestation of the neurodegeneration.*

## **Topographical and Morphological Differences of Corneal Dendritic Cells during Steady State and Inflammation**

Jiao H, Naranjo Golborne C, Dando SJ, McMenamin PG, Downie LE, Chinnery HR.

Ocul Immunol Inflamm. 2020 Aug 17;28(6):898-907.

*Local and systemic inflammation induced by bacterial lipopolysaccharide had differential effects on corneal immune cells. These findings are translatable to our understanding of morphological variations of corneal dendritic cells in humans.*

## **Corneal Epithelial Dendritic Cell Response as a Putative Marker of Neuro-inflammation in Small Fiber Neuropathy**

Kamel JT, Zhang AC, Downie LE.

Ocul Immunol Inflamm. 2020 Aug 17;28(6):898-907.

*This case report identifies corneal dendritic cell density as a potential non-invasive marker of symptomatic small fibre neuropathy due to inflammatory causes.*

## **Psychometric Properties of the Keratoconus Outcomes Research Questionnaire: A Save Sight Keratoconus Registry Study**

Kandel H, Pesudovs K, Ferdi A, Mills R, Chen JY, Watson A, Poon A, Downie LE, Watson SL.

Cornea. 2020 Mar;39(3):303-310.

*This paper describes results from a validation study that shows that the Keratoconus Outcomes Research Questionnaire (KORQ) provides a robust measure of quality-of-life outcomes in people with keratoconus.*

### **Sensory augmentation to aid training with retinal prostheses**

Kvansakul J, Hamilton L, Ayton LN, McCarthy C, Petoe MA.

J Neural Eng. 2020 Jul 13;17(4):045001.

*Combining visual and auditory modalities led to an improvement in light localisation accuracy and response times. The results suggest there may be a benefit to including auditory cues when training bionic eye recipients.*

### **Longitudinal outcomes of circumlimbal suture model-induced chronic ocular hypertension in Sprague-Dawley albino rats**

Lakshmanan Y, Wong FSY, Zuo B, Bui BV, Chan HH.

Graefes Arch Clin Exp Ophthalmol. 2020 Jul 5.

*Functional deficits and loss of retinal ganglion cells preceded retinal thinning as measured in a rodent model of glaucoma induced using a minimally invasive circumlimbal suture model.*

### **Retinal Functional and Structural Changes in the 5xFAD Mouse Model of Alzheimer's Disease**

Lim JKH, Li QX, He Z, Vingrys AJ, Chinnery HR, Mullen J, Bui BV, Nguyen CTO.

Front Neurosci. 2020 Aug 13;14:862.

*Using a murine model of Alzheimer's disease we show that the inner retina is more sensitive to amyloid changes in early disease and that the outer retina also becomes affected with disease progression.*

### **Gene Therapy Intervention in Neovascular Eye Disease: A Recent Update**

Lin FL, Wang PY, Chuang YF, Wang JH, Wong VHY, Bui BV, Liu GS.

Mol Ther. 2020 Jun 30:S1525-0016(20)30341-5.

*This review provides updates on the development of antiangiogenic approaches, including current gene therapy strategies already in clinical trials and the latest preclinical outcomes of studies utilizing CRISPR-Cas gene editing.*

### **Non-invasive Instrument-Based Tests for Quantifying Anterior Chamber Flare in Uveitis: A Systematic Review**

Liu X, McNally TW, Beese S, Downie LE, Solebo AL, Faes L, Husain S, Keane PA, Moore DJ, Denniston AK.

Ocul Immunol Inflamm. 2020 Apr 7:1-9.

*This systematic review identified laser-flare photometry to have moderate-to-strong correlation with clinician grading and aqueous protein concentration in uveitis, and thus can potentially offer an automated and objective assessment approach.*

### **Effect of fundus tracking on structure-function relationship in glaucoma**

Montesano G, Rossetti LM, McKendrick AM, Turpin A, Fogagnolo P, Oddone F, Lanzetta P, Perdicchi A, Johnson CA, Brusini P, Garway-Heath DF, Crabb DP.

Br J Ophthalmol. 2020 Mar 2:bjophthalmol-2019-315070.

*We related structural data (OCT) to functional data acquired with the Humphrey Field Analyzer (HFA) and the Compass fundus perimeter (CMP, equipped with fundus tracking). Performance of the two devices was similar.*

## **Migraine Screening in Primary Eye Care Practice: Current Behaviors and the Impact of Clinician Education**

Nguyen BN, Singh S, Downie LE, McKendrick AM.

Headache. 2020 Aug 7. doi: 10.1111/head.13920.

*We identified an opportunity for continuing professional development re: migraine screening. Educating optometrists on the importance and utility of a validated migraine screening tool is achievable and may improve identification and management of migraine.*

## **The Ida Mann 2020 special issue: Vision scientists breaking the glass ceiling**

Pardhan S, Thompson B, Downie LE, Porter J, van Nispen RMA.

Ophthalmic Physiol Opt. 2020 Mar;40(2):61-65.

*This Editorial was for the 'Ida Mann 2020 Special Issue', celebrating leading female vision scientists. It pays tribute to Professor Dame Ida Mann, a distinguished ophthalmologist recognised for her inspiring work in ocular embryology.*

## **Optical stimulation of neural tissue**

Richardson RT, Ibbotson MR, Thompson AC, Wise AK, Fallon JB.

Healthc Technol Lett. 2020 Jun 25;7(3):58-65.

*Overview of the use of optical stimulation as an alternative or adjunct to electrical stimulation for modulating neural activity to manage conditions such as hearing loss, blindness or movement disorders.*

## **Differential aging effects in motion perception tasks for central and peripheral vision**

Sepulveda JA, Anderson AJ, Wood JM, McKendrick AM.

J Vis. 2020 May 11;20(5):8. doi: 10.1167/jov.20.5.8.

*Motion perception is critical for driving. We find aging effects are not uniform across all motion tasks, and that performance using periphery vision cannot always be predicted from performance measured centrally.*

## **Ocular motor measures of visual processing changes in visual snow syndrome**

Solly EJ, Clough M, McKendrick AM, Foletta P, White OB, Fielding J.

Neurology. 2020 Jul 16;10.1212/WNL.000000000010372.

*We show that performance on simple ocular motor tasks differs in people with Visual Snow Syndrome, demonstrating changes to cortical processing of visual information.*

## **Minimizing axon bundle activation of retinal ganglion cells with oriented rectangular electrodes**

Tong W, Hejazi M, Garrett DJ, Esler T, Prawer S, Meffin H, Ibbotson MR.

J Neural Eng. 2020 Jun 29;17(3):036016.

*In Bionic eyes, by placing rectangular electrodes on the retinal surface, unwanted axon bundle activation is minimised and the activation pattern confined. This strategy will improve retinal prostheses.*

## **Stimulation Strategies for Improving the Resolution of Retinal Prostheses**

Tong W, Meffin H, Garrett DJ, Ibbotson MR.

Front Neurosci. 2020 Mar 26;14:262.

*This paper summarises the recent progress and the remaining challenges in the development of stimulation strategies for retinal prostheses, which are implantable devices designed for restoring vision to the blind.*

### **Acquired Visual Deficits Independent of Lesion Site in Acute Stroke**

Wijesundera C, Vingrys AJ, Wijeratne T, Crewther SG.

Front Neurol. 2020 Jul 17;11:705.

*Radiologically confirmed acute stroke cases have losses of visual field and acuity-in-noise and 44% are not aware of this loss. We find no association between structural (MRI/CT) and visual outcomes.*

### **The neuroregenerative effects of topical decorin on the injured mouse cornea**

Wu M, Downie LE, Grover LM, Moakes RJA, Rauz S, Logan A, Jiao H, Hill LJ, Chinnery HR.

J Neuroinflammation. 2020 May 4;17(1):142.

*This study demonstrates a therapeutic effect of decorin, a small proteoglycan, on corneal nerve regeneration and macrophage suppression after injury. This effect was mediated by corneal epithelial dendritic cells.*

### **Ocular Demodex: a systematic review of the clinical literature**

Zhang AC, Muntz A, Wang MTM, Craig JP, Downie LE.

Ophthalmic Physiol Opt. 2020 Jul;40(4):389-432.

*Demodex are small mites that live in human hair follicles. This comprehensive clinical review summarises what we know about the cause, diagnosis, and treatment of Demodex found in eyelashes.*

### **Omega-3 polyunsaturated fatty acid oral supplements for improving peripheral nerve health: a systematic review and meta-analysis**

Zhang AC, De Silva MEH, Maclsaac RJ, Roberts L, Kamel J, Craig JP, Busija L, Downie LE.

Nutr Rev. 2020 Apr 1;78(4):323-341.

*This review synthesised clinical trial data relating to the effect of omega-3 fatty acid supplementation on peripheral nerves. We find this intervention may reduce the risk of chemotherapy-induced peripheral neuropathy.*

### **Omega-3 Fatty Acids and Eye Health: Opinions and Self-Reported Practice Behaviors of Optometrists in Australia and New Zealand**

Zhang AC, Singh S, Craig JP, Downie LE.

Nutrients. 2020 Apr 22;12(4):1179.

*Based upon a survey of optometrists, this paper reports that optometrists routinely make recommendations about diet and omega-3 fatty acids, particularly for dry eye disease and age-related macular degeneration.*

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## **UMOSS**

Though this year has taken a very unexpected turn and impacted greatly on UMOSS's planned events, it has provided us an opportunity to flex our creative muscles and shift focus on to new projects and prospects.

UMOSS is still striving to focus on student engagement and building camaraderie amongst the Optometry student cohort, which has proven to be a challenge in a socially distanced world. We are happy to report that both UMOSS and all the student representatives of the different year levels have successfully hosted multiple online events to help keep the students together during these difficult times. These events are particularly important for our new OD1s, who have had limited opportunity to get to know one another and their colleagues in the year levels above them. The OD1 representatives, Arshdeep Gill and Lucy Wang, have worked tirelessly to keep their year level connected by organizing online catch ups and weekly study sessions. Similarly, the OD2 representatives, Ishan Vakil and Kim Nguyen have been encouraging classmates to share childhood and pet photos on their Facebook page, as well as hosting online game

nights. Sushweta Pal and Adam Barresi, the OD3 representatives, have also adapted well to a semester in lockdown and have managed to bring their year level themed dress up Thursdays to the virtual classroom, as well as holding many online movie nights. UMOSS, along with the hard work of Jenkin Yau (BBBS Co-ordinator, OD2), have also created a virtual common room on Discord. This common room acts as an online space for all optometry students, both past and present, to gather for discussions, support, and fun.

To further facilitate inter-year level bonds and peer learning, UMOSS began our Eye-so Study Sessions in semester 1. The Eye-so study sessions are a mentoring program where students from older year levels host Zoom sessions for younger year levels to attend and ask questions or seek advice about varying topics. It has provided a unique opportunity for different students to interact and support each other throughout the semester either as mentors or mentees. After much success and very positive feedback, these peer mentoring sessions will be continuing into the second semester. We hope it continues to grow and help more students in the years to come.

The Big Brother Sister Program (BBBS) has also been working hard to establish a foundation of mentorship for the OD1s. In Semester 1, they hosted a very entertaining online escape room involving various puzzles that the OD1s and their OD2 'siblings' had to solve together. This semester BBBS will be hosting their annual student equipment session on Zoom, providing the OD1s with a chance to ask their peers any questions they may have about the different equipment options available to them.

UMOSS has been thrilled to see the engagement of all students, across the various events and opportunities that have been presented to them. They participated wholeheartedly in the Hoodie Design Competition which resulted in a recording breaking number of sales this year. We are very excited for this engagement to continue as there are many more events to look forward to. Our annual Eyemazing race has evolved into the Zoomazing race which will consist of teams of students working through puzzles and challenges in a race across the internet. We are also hosting a charity raffle for World Sight Day instead of our annual bake sale. UMOSS is also involved in the first ever National Optometry Student Conference, hosted by the Optometry Student Society Australia in conjunction with Optometry Australia. We are looking forward to providing an opportunity to build a network amongst the penultimate and final year Optometry students across Australia.

2020 has been a year of many challenges, but we are proud of work and resilience of every one of the students in our cohort. As things slowly shift back to normalcy, we wanted to take this opportunity to thank all the staff members who have worked tirelessly to adapt to the everchanging environment of the pandemic in order to provide us with every learning opportunity possible.

Thank you,

Chamasha Dissanayake and Ashviney Vigneswaran

UMOSS President and Vice-President 2020

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## Acknowledgements

The Department would like to pay tribute to Dr Genevieve Napper who lost a courageous battle with cancer on Friday, June 26, 2020. Genevieve made enormous contributions to the profession of optometry, to Optometry Victoria, and to the eye health of vulnerable members of the community, particularly Aboriginal and Torres Strait Islanders. Genevieve was the winner of the Department's Alumnus Award in 2019. She will be missed.