HELSINKI 2024
European Academy of Optometry and Optics 10.–12.5.

Advancing Optometry and Optics
through technology and shared care.

BOOK OF ABSTRACTS

FINNISH ASSOCIATION
OF VISION
AND EYECARE

EssilorLuxottica

HOYA
VISION CARE

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INFORMATION ABOUT THE CONFERENCE

THE ORGANIZERS

The European Academy of Optometry and Optics (EAOO)

European Academy
of Optometry and Optics

The Finnish Association of Vision and Eye Care (NÄE ry)

FINNISH ASSOCIATION
OF VISION
AND EYECARE

IN PARTNERSHIP WITH

The European Council of Optometry and Optics (ECOO)

The American Academy of Optometry (AAO)

AMERICAN ACADEMY
of OPTOMETRY

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José González-Méijome, Chairman of EAOO Educational Committee

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Rupal Lovell-Patel, Vice-president of EAOO, *United Kingdom*

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THE WORDS OF THE PRESIDENTS

Welcome Message from the President of the European Academy of Optometry and Optics (EAOO)

Liliana STANKOVA, Bulgaria

Dear colleagues,

The EAOO Helsinki 2024 Conference has once again proven itself as a premier international gathering in the field of optometry. I extend my sincere gratitude to our gracious hosts, the Finnish Association of Vision and Eye care (NÄE ry), for their unwavering support and diligent efforts in organizing this year's event. Helsinki, with its captivating seaside charm, offers a unique backdrop for our conference endeavors. Amidst the bustling schedule, I encourage you to take a moment to explore the beauty of this city.

This year's conference theme holds particular relevance to our profession. In an era defined by rapid technological advancements and evolving healthcare landscapes, staying updated on the latest trends and innovations in eye care is paramount. "Advancing Optometry and Optics through Technology and Shared Care" embodies the integration of technological breakthroughs and collaborative practices aimed at enhancing patient care and outcomes. It underscores our commitment to advancing the practice and study of optometry and optics, propelling our profession into a forward-thinking direction.

Factors such as accelerated digitalization, emerging AI technologies, industry innovations, and societal challenges like myopia, economic fluctuations, and refugee crises significantly influence the landscape of optometry and optics across Europe. The concept of Shared Care emphasizes collaboration among various healthcare professionals to ensure comprehensive and coordinated patient care. It acknowledges that optimal outcomes are often achieved through a team-based approach where professionals share insights, information, and responsibilities.

The Academy's core mission of promoting lifelong learning resonates deeply within the dynamic realities of our profession. Our overarching theme reflects our dedication to harnessing technological innovations and fostering collaboration to deliver exceptional vision care. I extend my heartfelt appreciation to our esteemed speakers, discussion and workshop leaders, and poster presenters for their invaluable contributions. Your expertise and dedication enrich our conference, facilitating the exchange of skills, knowledge, and experiences crucial to addressing the challenges in optometry and optics across Europe.

Special gratitude is extended to our distinguished sponsors, including EssilorLuxottica, HOYA, iCare, Specsavers, Coopervision, Heidelberg, Rodenstock, Bod Lenses, Zeiss, Amblyoplay, Prolens AG, Innz Medical, Eaglet Eye and Metropolia whose support has been instrumental in making this event possible. To all exhibitors, many thanks for your participation and for enriching our conference experience with your insights and innovations. Alongside the European Council of Optometry and Optics (ECOO), the Academy network strives to empower optometry and optics professionals across Europe, fostering collaboration to tackle shared challenges.

Thank you for your unwavering support of our conference. Over the next three days, you'll have the opportunity to connect with colleagues from around the globe, partake in engaging lectures, and participate in topical discussions. Beyond expanding your knowledge, I hope you forge new connections and relish this unparalleled experience.

Looking ahead, we are already laying the groundwork for our 2025 conference in Ljubljana. I encourage you to mark your calendars and join us as we continue our collective journey of learning and collaboration.

Best wishes,

Liliana Stankova, FMEAOO, FEAOO
President, European Academy of Optometry and Optics

THE WORDS OF THE PRESIDENTS

Welcome message from the President of the Finnish Association of Vision and Eye Care (NÄE ry)

Panu TAST, Finland

Dear Conference Participants,

It is with great pleasure that I extend my warmest welcome to the **15th Annual European Academy of Optometry and Optics (EAOO) Conference.** This prestigious event, organized by the EAOO in collaboration with **Finnish Association of Vision and Eyecare (NÄE),** promises to be an inspiring and knowledge-packed experience for all attendees both physical and online.

The theme of this year's conference is **"Advancing Optometry and Optics through Technology and Shared Care."** We are happy with the theme, as Finland is one of the leading eye health technology developers in the world. As representatives of Finnish Association, we are honored to contribute to this significant gathering of optometry and optics professionals from across Europe. Our goal is to foster dialogue, exchange ideas, and promote collaboration within our field.

In turn, we hope you to contribute to the conference program by enjoying presentations, workshops, and posters. Please, take everything out of cutting-edge research & researchers, networking opportunities and workshops available in our conference. Let us together make this event a truly exceptional gathering of minds and expertise in the field of optometry, optics and eye health.

Once again, thank you for your participation. We are happy to see you here at EAOO Conference in spring Helsinki, in the capital of the happiest nation in the world!

Panu Tast
CEO, Finnish Association of Vision and Eyecare

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THE WORDS FROM THE MAIN PARTNERS

ESSILORLUXOTTICA, DIAMOND SPONSOR

EssilorLuxottica

Proud to partner with the European Academy of Optometry and Optics as a diamond sponsor

EssilorLuxottica is proud to continue its long-standing partnership since more than a decade with EAOO by participating in its 15th annual conference once again as a diamond sponsor. EssilorLuxottica looks forward to sharing its vision care expertise at this year's conference and championing innovative solutions that will elevate and shape the future of vision care. Together with EAOO, we care about sharing the latest evidence, insights and solutions to address pressing global eye care challenges and help improve patient outcomes.

EssilorLuxottica is a global leader in the design, manufacture and distribution of ophthalmic lenses, frames and sunglasses. With over 200,000 employees across 150 countries, 650 operations facilities and 18,000 stores, in 2023 the Company generated consolidated revenue of Euro 25.4 billion. Its mission is to help people around the world to see more and be more by addressing their evolving vision needs and personal style aspirations. EssilorLuxottica is home to the most advanced lens technologies including Varilux, Stellest and Transitions, the most iconic eyewear brands including Ray-Ban and Oakley, the most desired luxury licensed brands and world-class retailers including LensCrafters and Sunglass Hut. The company's OneSight EssilorLuxottica Foundation has given access to sustainable vision care to more than 760 million people in underserved communities.

HOYA, PLATINUM SPONSOR

HOYA Vision Care is honored to support the 15th Annual EAOO conference in Helsinki as a platinum sponsor.

As a global leader in optical technology, HOYA Vision Care is dedicated to providing innovative vision care solutions for every stage of a patient's life. with a strong effort towards Myopia Management. This year, HOYA Vision Care will also partner with EAOO to deliver multiple, high-quality professional education webinars and lectures for Eye Care Professionals, sharing insights and progress in the myopia management area.
By 2050, an estimated 5 billion people could be affected by myopia and annual myopia progression rate is most rapid under 10 years of age.

"Our children deserve better – the impact of myopia on our children's lives should not be overlooked with it affecting their education and quality of life," said Alexandre Montague, CEO HOYA Vision Care. The success of MiYOSMART is only the first step. We're calling for increased efforts to raise awareness, educate Eye Care Professionals, educate parents through Eye Care Professionals about the condition and the importance of diagnosing, monitoring and seeking timely treatment for their children."

A steadfast partner to Eye Care Professionals around the world, it stands at the forefront of optical excellence. With a global presence, consisting of 43 laboratories and a growing team of 20,000 employees, HOYA Vision Care delivers innovative lenses and other vision care solutions to millions of people in 110 countries.

THE CONFERENCE PROGRAMMME FRIDAY 10th

08:30–9:00	**HyMy Village tour of the Metropolia University of Applied Sciences**		
09:00–10:30	**WORKSHOP 1** Investigating the Effect of Facial and Head Structure on Binocular Balance and Cortical Integration. Jonathan Shapiro	**WORKSHOP 2** Scleral lens fitting with Profilometry. Kyriakos Telamitsi	
10:30–11:00	**Coffee Break and HyMy Village tour of the Metropolia University of Applied Sciences**		
11:00–12:00	**WORKSHOP 3** AI: A teaching tool to enhance teaching and learning or just a cheating tool? Sonja Zinken	**WORKSHOP 4** My questions your answers about myopia management. Langis Michaud	**WORKSHOP 5** Essilor® Instruments Vision Lab - Hands on refraction. Yaiza Garcia, Paul Joret
12:30–14:00	**Lunch, Posters and Exhibition**		
	Main plenary room: Europeae	**Parallel room: Nautica**	**Room: Baltica**
14:00–14:30	**Welcome session** President Finnish association / EAOO President / Sponsors	No paralell activities	No paralell activities
14:30–15:30	**Keynote Lecture I** The hospital in 2030, is it in your optical practice? Dr. Leonard Witkamp		
15:30–16:00	**COMMUNICATION AND SHARED CARE** **15:30 - 20 min lecture:** Psychology and communication: the bread and butter of running a successful clinic. Ariana Ghafouri (OP1) **15:50 - 20 min lecture:** Effective communication & breaking bad news. Lorcan Butler (OP2)	**Rapid Fire Session (3x10 minutes): OPTICS & VISION** -The impact of induced visual degradation on reaction times to hazard detection in younger and older drivers. Julie-Anne Little (RF1) -Influence of alcohol on vision while driving. Matic Vogric (RF2) -Testing the feasibility of spectacle lenses using commercially available 3D printing methods. Bożena Zgardzinska (RF3)	**Special Interest Group CONTACT LENS**
16:00–16:30	**16:10 - 20 min lecture:** Dry Eye Disease and shared care. Mirjam van Tilborg (OP3)	**ZEISS Sponsored Satellite Session** ZEISS MyoCare: Efficacy confirmed across multiple sites, large cohorts and various ethnic groups. Dr. Pablo Sanz Diez	
16.30–17.00	**Coffee Break, Posters and Exhibition**		
17.00–17.30	**30 min lecture: When to refer:** A guide for the optometrist. Dinah Paritzky (OP4)	Specsavers Sponsored Satellite Session Second Opinion Service ("SOS") for optometrists. Svein Tindlund	**Early Career Session (3x10 minutes)** - Review of contralateral eye research on myopia control (myopia management). Lewis Marshall (EC1) - Efficacy of defocus incoporated multiple segment spectacle lenses in a young Czech population. Marketa Zakova (EC2) - Exploring cultural competence in ophthalmic dispensing education in South Africa: a qualitative study. Sanele Buthelezi (EC3)
17:30–18:00	**American Academy of Optometry** - EAOO Joint Symposium Pediatric Optometry Susan Cotter and Fiona Anderson	**17:30 - 18:15: Rapid Fire Session (4x10 minutes): MYOPIA** - Myopia management for high myopes: *A review of literature. Rakhee Shah (RF4) - Red-light therapy- A new myopia management intervention. David Berkow (RF5) - Monitoring myopia control: Biometry-Technology options. David Berkow (RF6) - Binocular vision considerations before myopia control. Christine Allison (RF7)	
18:00–18:15			**Special Interest Group MYOPIA MANAGEMENT**
18:15-19:00		**18:15 - 19:00: Rapid Fire Session (4x10 minutes): CONTACT LENS** - Effect of a low concentration of cross-linked hyaluronic acid and phospholipids artificial tear on the pre-lens tear film of soft contact lens wearers. Giancarlo Montani (RF8) - Power profile and sagittal height differences of soft contact lenses indicated for myopia control. Giancarlo Montani (RF9) - Fitting corneal rigid contact lenses - What have we lost?! David Berkow (RF10) - How technology can help to bring your scleral lens fit to the next level. Langis Michaud (RF11)	
20:30-22:30	**ECOO Reception**		

FELLOWSHIP INTERVIEWS

Theme: Advancing Optometry and Optics through technology and shared care.
SATURDAY 11th

	Main plenary room: Europeae	Parallel room: Nautica	Room: Press Room
09:00–9:30	**MYOPIA** **30 min lecture:** Unanswered questions in Myopia management. Giancarlo Montani (OP5)	**Rapid Fire Session (4x10 minutes): REFRACTION & VISION** - Validation study of the Vision-STM 700: Comparing smart and standard refraction methods to gold standard. Yaiza Garcia-Sanchez (RF12) - Age-related normal limits for visual acuity and contrast sensitivity in photopic and mesopic lighting: Occupational and clinical applications. Arjan Keuken (RF13) - Rehabilitation of visual functions in people with visual impairment. Pavel Benes (RF14) - A novel test for visual cognition in school children. Christine Nearchou (RF15)	ECOO Meeting
9:30-10:00	**30 min lecture:** Shedding light into the mechanisms of myopia management with visual electrophysiology research. José M. Gonzalez-Meijome (OP6)		
10:00-10:30	**PATHOLOGY** **30 min lecture:** Alzheimer's disease, dementia and the eye. Svatopluk Synek (OP7)	HOYA Sponsored Satellite Lecture Confidence through Evidence - MiYOSMART in daily practice. Pascal Blaser	
10:30-11:00	**30 min lecture:** Geographic atrophy in Europe - detection & treatment options. Lorcan Butler (OP8)		
11:00–11:30	**Coffee Break, Posters and Exhibition**		
11:30–12:00	**CONTACT LENS & DRY EYE** **30 min lecture: Incorporate a microvault on a scleral lens. Telamitsi Kyriakos (OP9)**	**EssilorLuxottica Sponsored Satellite Session** Latest research evidence on Essilor® Stellest® lenses. Olga Prenat and Gabi Steenbekkers	ECOO Meeting
12:00–12:30	30 min lecture: Crossover trial of a new one-day disposable multifocal contact lens: preliminary report. Bruce Evans (OP10)		
12:30–13:00	30 min lecture: Science to the practice, guidelines for dry eye in the Netherlands. Mirjam van Tilborg (OP11)	ICARE Sponsored Satellite Session How artifiical intelligence is changing retinal screening.	
13:00–13:30	**Lunch, Posters and Exhibition**		
	Main plenary room: Europeae	**Parallel room: Nautica**	**Room: Press Room**
14:00–14:30	**REFRACTION** **30 min lecture:** Advancing clinical refraction: Assessing the efficacy of smart automated refraction programs. Paul Joret (OP12)	EAOO Assembly General Meeting	No paralell activities
14:30–15:00	**30 min lecture:** Algorithm-assisted refraction with different platforms in the regular optometric and specialty contact lens clinical setting: advantages, limitations and opportunities. José M. Gonzales-Meijome (OP13)		
15:00–15:30	**Keynote Lecture II** Ensuring we as primary eyecare providers are part of the action to address preventable visual impairment: WCO's role! Dr. Sandra Block	No paralell activities	No paralell activities
16.00–16.30	**Coffee Break, Posters and Exhibition**		
16.30–17.00	30 min lecture: Short-wave visible light protection in ophthalmic devices: platforms, characteristics and efficacy. José Manuel Gonzalez-Meijome (OP14)	**Rapid Fire Session (4x10 minutes): BINOCULAR VISION** - Prevalence of accommodative and binocular vision anomalies in UK primary school children and their association with reading ability. Brendan Barrett (RF16) - Comparison of cycloplegia at 10-, 20- and 30-minutes following proxymetacaine and cyclopentolate instillation in white 6-7-year-olds. Megan Doyle (RF17) - Diplopia: Role of optometrist after ocular surgeries. Andrea Rapino (RF18) - Hyperopia and school performance in schoolchildren in Ireland. Síofra Harrington (RF19)	Special Interest Group EDUCATION
17:00–17:30	Symposium / Round Table What role can we play in myopia awareness		
20:00-22:30	**EAOO Dinner**		

FELLOWSHIP INTERVIEWS

Theme: Advancing Optometry and Optics through technology and shared care.
SUNDAY 12th

	Main plenary room: Europeae	Parallel room: Nautica
9:30–09:50	**Rapid Fire Session (2x10 minutes): EDUCATION** Broaden the view of optometry students with social responsibility. Mirjam van Tilborg (RF20) Design of the part-time Bachelor's degree in optometry. Sharing best practice. Lisette Altena (RF21)	**Rapid Fire Session (5x10 minutes): PRIMARY CARE / PATHOLOGY** - Transient monocular vision loss - migraine or brain tumour. Lorcan Butler (RF22) - Corneal imaging and densitometry measurements in keratoconus patients to monitor disease progression and treatment outcomes after contact lens or Intacs treatment. Khaled Alzahrani (RF23) - Important ocular effects of diabetes mellitus. Nicholas Green (RF24) - Use of multiple imaging modalities to differentiate mild optic disc edema from optic disc drusen: A case study. Nicholas Green (RF25) - A deeper understanding on measuring the visual acuity. Jonathan Shapiro (RF26)
09:50–10:20	**30 min lecture:** Establishing screening methods for non-strabismic binocular anomalies. Volkhard Schroth (OP15)	
10:20–10:50	**30 min lecture:** Migraine and other headaches: the role of the optometrist. Bruce Evans (OP16)	**HEIDELBERG ENGINEERING** **Sponsored Satellite Session**
10:50–11:20	**CONFERENCE CLOSING CEREMONY**	No paralell activities
11:20-11:50	**Coffee Break, Posters and Exhibition**	
11:50-12:20	**30 min lecture:** Increase your ability to improve your patient's life: Case studies of thinking "out-of-the-box". Jonathan Shapiro (OP17)	**Rapid Fire Session (3x10 minutes):** **AI AND ADVANCES IN OPTOMETRY** **-** Technological advancements in treating AMD & DME. Lorcan Butler (RF27) - Clarity in sight: An evaluation of current paediatric prescribing guidelines using AGREE II Assessment and a modified Delphi approach. Irene Ctori (RF28) - A comparison of objective grading of images obtained using a slit lamp digital imaging system and an advanced topographer. Giancarlo Montani (RF29) **12:20-12:50: 30 min lecture:** A comparative study on the effect of virtual reality games on visual parameters in young adults. Sudesan Jothi (OP19)
12:20-12:50	**30 min lecture:** Elevating advocacy for everyone's vision: how can optometrists, opticians and academia contribute? Eva Lazuka-Nicoulaud (OP18)	

KEYNOTE LECTURES' ABSTRACTS

KEYNOTE LECTURE 1

Doctor Leonard WITKAMP
Founder and board member of KSYOS Digital Hospital, Amsterdam
Professor in digital transformation, formerly attached to the Department of Medical Informatics of the Academic Centre in Amsterdam
The Netherlands
l.witkamp@ksyos.nl

Lecturer's resume

Dr Leonard Witkamp is a former dermatologist, board member of KSYOS, the first digital hospital in The Netherlands. He is a professor in digital transformation, formerly attached to the Department of Medical Informatics of the Academic Medical Centre in Amsterdam. He founded the KSYOS organization in 2000. KSYOS develops digital transformation services that add to increase efficiency of the healthcare process. KSYOS investigates the efficiency increasing potential of this digitally transformed medical services in cooperation with future users, thereby creating broad basic support. KSYOS subsequently takes care of the implementation and operation of these services in regular healthcare. KSYOS works together with a network of over 20.000 healthcare workers in diagnosis, consultation, and monitoring. KSYOS yearly performs over 250.000 consultations.

His experience as research fellow in market research, as university teacher and researcher, as practicing dermatologist and as board member of KSYOS has been an excellent base for his role as Professor in Telemedicine. By teaching, doing research and promoting the use of digital transformation in regular healthcare he helps Ksyos to reach its mission: maintaining accessibility of the healthcare system for the general population

Abstract

Over 12.000 health workers provide medical specialistic care to over 1.500 patients daily, being contracted by Ksyos, the first digital hospital in The Netherlands. Fully insured. With the use of care paths carefully designed by ophthalmologists and optometrists, optometrists see patients without waiting list close to the home under remote supervision of regional ophthalmologists.

Being a digital hospital, Ksyos has the treatment relation with the patient, is responsible for proper care and has the financial contracts with health insurers and health workers. It provides liability insurance for their health workers. It is responsible for the legal capacity

of the contracted health workers and for the medical instruments used. Finally, it organizes the connection among all regional health workers and scaling of the program. Doing so, over 40,000 ophthalmology patients visit Ksyos contracted optometrists annually, with over 160,000 patients with non-urgent eye conditions treated since its inception.

In the care path Ophthalmology, the optometrist screens, diagnoses and follows-up non-urgent eye conditions such as (suspected) glaucoma, cataract, and keratitis sicca under remote store-and-forward supervision. In the care path Fundus Screening, optometrists screen type II diabetes patients for diabetic retinopathy. Since inception, over 540,000 patients have been screened close to their home. The care path Orthoptics has recently been established, with a focus on children. In 2023, over 9.000 patients have been examined, predominantly addressing issues such as strabismus, amblyopia, and headache complaints. To date, over 16,000 orthoptic examinations have been conducted. Since 2022, Ksyos introduced non-insured care for driver's license examination.

Over 325 optometrists and 50 orthoptists across 330 optical stores collaborate with around 200 medical ophthalmologists who provide supervision to all consultations. Thus, giving the optometrists the place they deserve in regular ophthalmic care. And as such, Dutch optometrist help to revolutionize the landscape of ophthalmic care, delivering better care close to the home without waiting lists.

KEYNOTE LECTURES' ABSTRACTS

KEYNOTE LECTURE 2

Doctor Sandra BLOCK
World Council of Optometry (WCO),
Morton Grove, Illinois, USA
SBlock@ico.edu

Lecturer's resume

Dr. Sandra S. Block OD, M. Ed., MPH, FAAO, Dipl AAO, FCOVD, DAAO, FNAP, FARVO is a Professor Emeritus at Illinois College of Optometry. She received her O.D. degree (1981) and followed by a Pediatric Residency (1982) at the Illinois College of Optometry where she was a faculty member until her retirement in 2020. She completed her Master of Education at National Louis University and her Master of Public Health from the University of Illinois, School of Public Health. She is a Diplomate in Public Health and Environmental Vision at the American Academy of Optometry, a Distinguished Fellow of the National Academy of Practice and a Fellow of ARVO. She previously sat on the Prevent Blindness Board of Trustees and was recently approved as an Emeritus Board member, was co-chair of the National Center for Children's Vision and Eye Health and currently is the treasurer of VISION 2020 USA Board of Directors.

She was a consultant to the Special Olympics Lions Clubs International Opening Eyes program from 1995-2022 and was instrumental in developing the vision program used globally. Her interests lie in primary care for children and persons with disabilities, as well as diagnosis and treatment of visually related learning problems as well as public health issues facing the equity and quality of eye care delivery.

Dr. Block has authored numerous publications and conducted presentations worldwide. In November 2021, she was elected as the WCO President-Elect. In which she has been involved with WCO's work with the World Health Organization and the International Agency for the Prevention of Blindness. Prior to November of 2021, Dr. Block served on WCO's Board of Directors as the Public Health Committee Chair. She is the current President of WCO.

Abstract

The presentation will highlight global issues associated with unaddressed vision impairment and blindness. A brief review of the challenges outlined in the 2019 World Health Organization's first ever World Report on Vision. Some of the problems found in the report are associated with access, affordability and accessibility of care as well as the importance of focusing on the patient and integrating eyecare into universal health care. The World Council of Optometry is actively engaged in developing a framework for a broader curriculum to address the importance of being a primary care provider. This shift would hopefully increase the quality and quantity human resources available to provide needed service leading to a reduction of preventable vision impairment and expand accessibility care. This effort is supported by internal WCO efforts and along with examples of partnering with global efforts to reduce the magnitude of preventable visual impairment outlined in the 2019 report.

ORAL PRESENTATIONS ABSTRACTS

Oral Presentation #1 (OP1)

Psychology and communication: The bread and butter of running a successful clinic

Author
Ariana GHAFOURI

Affiliation / Institution
The Danish Contact Lens Institute. Aarhus & Copenhagen, Denmark
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Topic
Educational

Abstract

The Danish Contact Lens Institute has been a pioneer in the world of optometry, both in Denmark and internationally.

Content
Specializing in a range of fields within optometry, one thing our optometrists are specialized in across the board is: communication. The bread and butter of clinical practice. The importance of basic psychology is key within any field where practitioner to patient communication is necessary.

Results
Psychology is a key tool that has been ignored and neglected. With primary focus being on sales numbers, materials and parameters during contact lens fitting, we've found success in focusing on psychology as a key factor as well. Clinical communication adds a complexity to all cases that will either make or break the success of your contact lens fitting. Within this session we will cover our expertise and experiences on communicating with different patient categories, by looking at case examples.

Conclusions
In conclusion patient communication is key, and considering that no patient is identical, different methods should be applied accordingly.

Oral Presentation #2 (OP2)

Effective communication & breaking bad news

Author
Lorcan BUTLER

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Topic
Educational

Abstract

Purpose/Background
Optometrist undergo extensive clinical education in the University and once they qualify, they are super skilled in detecting, diagnosing and treating eye conditions. However, we are not very good at how to explain these findings to our patients, with increasing complaints being made against ECPs. In a very litigious society, we need to be aware of the medico legal implications of not delivering the bad news in the correct manner.

Methods
We will discuss the 3 Breaking Bad News Models SPIKES, ABCDE, BREAKS in detail explaining the different nuances with each one.

Results
We will discuss which method is used more commonly not just by optometrists but by other healthcare practitioners around the world.

Conclusion
This educational piece will be able to give small practical clues on how to improve your communication methods utilising verbal and non-verbal clues, mirroring, active listening eye contact and most importantly the ability to show empathy at all times. Ideal for Optometry students, newly qualified, early career or more experienced practitioner. This is a lifelong skill that needs constant work on to make sure we are being understood and to protect ourselves medic legally.

Additional information
Methods/Case presentation: That as optometrists the highest number of complaints being made against us, in the UK, is due to our lack of communication skills. Historically it is something that has never been taught in University in Optometry Undergraduate course.

Results: Optical Consumer Complaints Service, UK complaints against Optometrists

Conclusion: SPIKES has only been around since 2000, when it was first printed in The Oncologist by famous Oncologist Robert Buckman. It is the No. 1 method used by Healthcare Practitioners all over the world.

Data/results: It is the most preferred protocol by doctors (75.6%) However there still are 63% of doctors not knowing of ANY protocol in breaking bad news. It is THE method advocated by the American Academy of Optometry to all of its members.

Critical Evaluation: In the UK all students are asked in their OSCEs by their College of Optometrists examiners what method do they utilize and why?

The 3 models are SPIKES, BREAKS, ABCDE:
S-Setting / P-Perception / I-Invitation / K-Knowledge / E-Empathy / S-Summary
B-Background / R-Rapport / E-Explore / A- Announce / K- Kindling / S-Summarize
A-Advance Preparation / B- Build a Relationship / C- Communicate Well /D- Deal with Family E- Encourage Emotions

Oral Presentation #3 (OP3)

Dry eye disease (DED) and shared care

Author
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Topic
Educational

Abstract

Background
Dry Eye Disease (DED) is a complex condition with multiple contributing factors and commonly coexists with other health issues. The pain and burden associated with DED often pose challenges that cannot be fully addressed through pharmaceutical interventions. As an optometrist, navigating the various physical and psychological aspects that patients may present or describe, especially in cases involving comorbidities such as Parkinson's, depression, thyroid problems, or severe pain, requires a comprehensive approach.

How to effectively manage these diverse aspects and collaborate with other professionals in shared care becomes crucial. This includes understanding the physical and psychological dimensions of patients' experiences and working collaboratively with professionals such as sleep therapists, somatic pain therapists, dietitians, and others.

Results
This lecture will present different scenarios aimed at promoting shared care and adopting a holistic approach to assist patients with DED. The cases discussed will highlight the psychological aspects of chronic pain and its impact on daily life, emphasizing the role of professionals such as sleep therapists, somatic pain therapists, dietitians, and more in the collaborative care model.

Conclusion
Following this interactive lecture, attendees will gain valuable insights and take-home messages that can be immediately applied in daily practice. The goal is to initiate shared care as an alternative and effective approach to supporting patients with DED. This new perspective encourages collaboration with various professionals to address the multifaceted challenges associated with DED, ultimately enhancing patient care and outcomes.

Oral Presentation #4 (OP4)

When to refer: A guide for the optometrist

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Topic
Clinical

Abstract

As primary eye care providers, optometrists play a crucial role in identifying a diverse range of ocular conditions that may require referral to ophthalmologists or other specialists. However, recognizing the right moment to refer a patient to a specialist is an essential skill that ensures timely and appropriate care. Optometrists should be familiar with the referral criteria and guidelines for common and rare eye diseases, as well as the referral pathways and protocols in their practice settings. This lecture, titled “When to Refer: A Guide for the Optometrist,” aims to provide optometrists with comprehensive insights into making informed decisions about patient referrals.

Content
This presentation will utilize the novel approach of identifying critical indicators at each stage of the optometric evaluation that necessitate prompt referral for specialized care, starting from history and symptoms, through refraction, near vision testing, binocular vision testing and keratometry, and of course health tests such as pupil testing, visual fields, slit lamp biomicroscopy and ophthalmoscopy. By the end of this lecture, participants will be able to identify red flags during the optometric examination, translating into enhanced patient care and outcomes.

Actions taken
The lecture will use evidence-based sources and clinical guidelines from various countries and regions, such as the American Optometric Association, the College of Optometrists, and the European Council of Optometry and Optics.

Recommendations/conclusions
Optometrists should be competent and confident in making appropriate referral decisions based on the best available evidence and clinical judgment. Optometrists should strive to improve their knowledge and skills in managing eye conditions and collaborate with other eye care providers to optimize patient outcomes.

Oral Presentation #5 (OP5)

Unanswered questions in myopia management

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Topic
Clinical

Abstract

Despite the volume of scientific literature on efficacy of myopia control treatments (MCT) there are still important questions without a definitive answer.
This lecture will outline the latest research on the following unanswered questions in myopia management.

1. Few comparisons of the various interventions for myopia control exist in the literature and conjecture remains as to whether myopia control efficacy can be described as an absolute or proportional effect. Novel analyses of randomized controlled trial data will be presented, to facilitate understanding of evidence-based comparison of treatments.

2. There is little knowledge on myopia progression after the cessation of MCT. Using the novel literature available will be presented the current evidence on myopic rebound effect of different treatments.

3. Digital device use has been considered a potential modifiable environmental risk factor that can increase myopia risk. However, associations between digital device use and myopia have not been consistently reported. To better understand the association between myopia and digital device use different studies will be presented.

4. Which is the best method to evaluate the long-term effect of MCT? Different procedures have been proposed including comparison to the mean and percentile growth charts. The influence of age and expected emmetropic eye growth on myopia control expectations will be detailed.

5. Increased time spent outdoor reduce the risk of developing myopia, but it is not clear its role in eyes that are already myopic. The evidence on this topic will be presented considering the results of recent studies available.

Oral Presentation #6 (OP6)

Shedding light into the mechanisms of myopia management with visual electrophysiology research.

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Topic
Research/Science

Abstract

Introduction
The purpose of the present lecture is to show the potential of electrophysiology to objectively evaluate the effect of visual and non-visual stimulation using different optical medical devices for the management of myopia.

Methods
Ten eyes of ten myopes used a peripheral gradient contact lens (Amiopik, Paune Vision, Spain) and seventeen eyes wore dual focus contact lens (MiSight, Coopervision, NY, USA) and an extended depth of focus (MYLO, markennovy, Madrid, Spain) contact lens all intended for myopia control were evaluated in three different experiments. Single vision contact lenses made of the same material were used as controls in all experiments. Additionally, a group of 10 eyes was evaluated to measure the effect of blue light stimulation (Dopavision, Germany) on the retinal electrical activity. a-wave and b-wave component of the Ful field electroretinogram (ffERG), pattern electroretinography (PERG) and multifocal electroretinograms (mfERGs) and global-flash multifocal electroretinogram (gf-mf-ERG) were recorded with the RETI-port/scan21 (Roland Consult, Wiesbaden, Germany). Simultaneous choroidal thickness (ChT) changes across the central 6 mm of the posterior pole were evaluated during the exposure to one of the contact lenses (peripheral gradient). Protocols have been reviewed and approved by the Ethics Subcommittee for Research in Life and Health Sciences of the University of Minho (CEICVS 038/2019). Considering the small sample size and the non-normal distribution of several variables, non-parametric statistics were used for comparison. Statistical significance was set at alpha=0.05.

Results
Peripheral gradient contact lenses showed a statistically significant decrease in amplitude in the a-wave and b-wave of the ffERG as well as in the PERG results. a-wave and b-wave amplitude changes were moderately correlated (Coefficient of correlation > 0.500) with changes in the choroidal thickness with the peripheral gradient contact lens. The dual focus (DF) and extended depth of focus (EDoF) myopia control contact lenses a significant myopic shift in the relative peripheral refraction, being more consistent for the DF lens in all meridians. Both lenses showed changes in different components of gf-mfERG wave response. Correlation analysis showed moderate association ($r>0.500$; $p<0.001$) between changes in relative peripheral refractive error with the contact lenses and changes in the electrical retinal activity. Application of blue light on the blind spot increased the inner retinal activity by 10 to 15% ($p<0.05$) and this effect was dosage dependent.

Conclusions
Myopia control contact lenses show an impact on the electrophysiological activity of the retina that might be related with the peripheral relative defocus effect induced. These potential connections between the optical effect and the retinal activity, along with the simultaneous evaluation of the choroidal thickness changes induced by such devices provide a path for shedding light into the mechanisms of action of optical myopia control devices. Future research should attempt to link the changes of the retinal image quality at different retinal sites with the impact in the electrical signal amplitude and potential changes overtime.

Disclosure
Authors have no conflicts of interest to disclose regarding materials and methods mentioned in this work.

Oral Presentation #7 (OP7)

Alzheimer's disease, dementia and the eye

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Topic
Clinical

Abstract

Background
Prominent visual symptoms can present in the visual variant of Alzheimer's disease (VVAD). Ophthalmologists and optometrists have a significant role to play in the early diagnosis of VVAD.

Methods
We retrospectively reviewed the files of ten consecutive patients diagnosed with VVAD.

Results
The common primary symptom at presentation with all patients was difficulty with near vision (reading difficulty n = 8, "visual blur" in near vision n = 2), and difficulty writing (n = 3). Following assessment, impaired reading and writing skills were evident in 9/10 and 8/10 patients respectively. Median distance visual acuity was 20/25 and at near the median visual acuity was J6. Partial homonymous visual field defect was detected in 80 % (8/10) of the patients. Colour vision was impaired in all patients when tested with Ishihara pseudoisochromatic plates, but simple colour naming was normal in 8/9 tested patients. Simultanagnosia was present in 8/10 patients.

Conclusions
Visual difficulties are prominent in VVAD. Dyslexia, incomplete homonymous hemianopia, preserved colour identification with abnormal colour vision on Ishihara, and simultanagnosia were all symptoms observed frequently in this patient series. Ophthalmologists and optometrists should be aware of the possibility of neurodegenerative disorders such as VVAD in patients with unexplained visual complaints, in particular reading difficulties.

Oral Presentation #8 (OP8)

Geographic atrophy in Europe - detection & treatment options

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Topic
Clinical

Abstract

Purpose/Content
There are 2 new FDA approved intravitreal therapies to reduce the rate of progression and mitigate the burden of GA associated with Dry AMD. They both target the Complement cascade albeit in a slightly different format.

Methods/Content
This presentation will compare the two products Syfovre (Apellis) and Izervay (Astellas) looking at their different mechanism of action, their recommendation dosage regimens and their clinical study resukts detailing OAKS, DERBY, GATHER trials.

Results/Action
Syfovre has come back quite strong after an initial concern about intraocular inflammation whilst Izervay has been relatively well accepted with no adverse complications as yet.

Conclusion/Recommendations
This presentation will discuss what you as a practitioner should now about these 2 products before they come to market in your country, talking about detection, advanced Imaging techniques and patient selection.

Oral Presentation #9 (OP9)

Incorporate a Microvault on a scleral lens

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Topic
Clinical

Abstract

Purpose/Background
Scleral lenses are getting much attention by researchers and practitioners because they provide an ever-increasing acceptance as the standard for irregular corneas and ocular surface diseases. Many practitioners do not have the skills or experience to confidently fit scleral lenses with Microvaults.
This lecture is aimed at new and intermediate scleral lens fitters and provides tricks and tips on opportunity to improve scleral fitting with Microvaults.

Contents
- Introduction to scleral lenses with Microvault, the passion and the skills needed.
- What to do when a lump, bump, or hump is in the way. Overcoming obstacles to achieve a great scleral lens fit.
- How to start to design a scleral lens with Microvault
- Using the Eye Surface Profiler (ESP) for measuring the eye, assess the ocular shape with obstacles.
- Slit-lamp assessment tricks and tips

Conclusion
The Eye Surface Profiler (ESP) by Eaglet Eye is the scleral lens fitting champion for your practice. ESP allows for highly accurate corneal and scleral measurements and precise assessment of the most pathologic eyes. The First Lens Fit Algorithms that are integrated into the ESP software make the scleral lens fitting process faster, easier and more precise, when you incorporate Microvault with less contact lenses redo.

Oral Presentation #10 (OP10)

Crossover trial of a new one-day disposable multifocal contact lens: preliminary report

Authors

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Topic

Research/Science

Abstract

Purpose

Hoya one-day multifocal (HOM) is a new contact lens for presbyopia with the following characteristics: silicone-hydrogel, 48% water content, Dk140, UVA/B-blocking, handling tint, centre-near multifocal design. The purpose is to compare this in a non-inferiority crossover trial with Alcon Dailies Total 1 multifocal (DTM).

Methods

Sixty participants (20 in London, 20 in Milan, 20 in Aarhus) wore each lens type for two weeks. Preliminary analyses are presented of key outcome variables (lens preference, VF-14 questionnaire, binocular visual acuity [VA] at distance and near, stereoacuity, speed of reading with Wilkins Rate of Reading Test, WRRT).

Results

At the end of the trial, 23 participants preferred HOM and 31 DTM, with six unable to choose. Of those who expressed a preference, the proportion preferring each type did not differ significantly from chance (sign test, $p=0.34$). At the end of each wearing period, the proportion who were prepared to buy each type was similar (HOM, 27/60; DTM 30/60), as were gradings of the ease of handling with each lens type ($p=0.28$). DTM gave slightly better (less than one line difference) median distance high contrast VA ($p=0.004$), and likewise for distance low contrast VA ($p=0.009$). There were no significant differences between the lens types in performance at high or low contrast near VA ($p>0.2$), near stereoacuity ($p=0.18$), WRRT ($p=0.26$), and VF-14 visual symptom questionnaire ($p=0.53$).

Conclusion

These preliminary results support equivalence of the two designs, each being preferred by some participants. Further analyses of additional variables, including data from daily diaries, are underway.

Oral Presentation #11 (OP11)

Science to the practice, guidelines for dry eye in the Netherlands

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Topic
Clinical

Abstract

Background
There is a common belief that scientific knowledge takes about a decade to be integrated into practical application. In the case of Dry Eye Disease (DED), significant scientific insights have emerged, including findings from DEWS workshops and the recent recognition of the Lifestyle Epidemic: Ocular Surface Disease. This prompts an exploration of the alignment between scientific knowledge and daily practices, as well as the consensus among optometrists, general practitioners (GPs), and ophthalmologists in the Netherlands.

Method
This process involved a consensus-building approach and peer review, led by an epidemiologist and medical researcher. A multidisciplinary team workgroup, optometrists, ophthalmologists, patients' representative started in 2022, consensus and feedback round is aimed jan-march 2023.

Results
A comprehensive guideline for DED was formulated specifically for optometrists in the Netherlands. The outcome of this collaborative effort is the creation of new guidelines for DED tailored to optometrists. The content of these guidelines is poised to significantly improve DED patient care. Notably, the guidelines are open source, facilitating effective communication between GPs, ophthalmologists, and optometrists, as well as enhancing the interaction between optometrists and their patients.

Conclusion
The development of country-specific (cultural) guidelines is essential to elevate the foundational care provided by optometrists for individuals with DED. These guidelines not only contribute to enhanced patient care but also foster a better understanding and collaboration among various eye care professionals. This initiative recognizes the importance of aligning practices with the latest scientific knowledge and promoting effective communication in the realm of Dry Eye Disease management.

Oral Presentation #12 (OP12)

Advancing clinical refraction: assessing the efficacy of smart automated refraction programs

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Topic
Educational

Abstract

Exploring smart programs algorithm-assisted refraction, principles, clinical validation and applications

Keywords
physiological optics; algorithm-based refraction; subjective refraction; guided refraction

Content
This communication will discuss the application of two novel refraction methodologies, exploring the role of smart automated refraction programs (Smart programs) using a vectorial approach for refractive components (M, J0, J45). These specifically developed refraction algorithms control the tunable continuous power optical modules of Essilor Instruments Vision-RTM700 and Vision-STM700 phoropters.
The first Smart Program was designed to provide fast subjective refractions in 3 minutes while securing accuracy, offering a semi-automated user interface. A clinical study conducted in Portugal by University of Minho in 2021 analysed its usage. The study group comprised of 41 subjects, with an (average age 38 years; 20-65 years), among which 59% were spectacles wearers.

The second Smart Program was designed to provide fully guided subjective refraction, from patient installation until the conclusion with a detailed report. Allowing delegation under ECP supervision when applicable laws and regulations permit it. It embeds the different sections of the refraction sequence in a decision tree that dynamically propose the next steps based on previous collected data (age, current vision, refraction variations, VA).

A clinical study also conducted by University of Minho in 2023 tested its usage when operated by a non-specialist, replicating a delegation setup. Once completed, the refractive results and patient were handed over to an ECP to produce the final prescription. The results were compared to a standard subjective refraction performed by a first ECP and to the prescription established by the second ECP. The final study group comprised 40 subjects (average age 36.3 years; 20-65 years), among which 75% wore spectacles.

Recommendations/Conclusion
The integration of smart automated refraction programs represents a significant advancement in the standards of care when it comes to subjective refraction, allowing ECPs to reduce refraction time with equivalent results or delegating subjective refraction to a non-ECP to enable the Shared Care approach on refraction.

Disclosure
The studies have been funded by EssilorLuxottica (France). Authors are employees of EssilorLuxottica.

Oral Presentation #13 (OP13)

Algorithm-assisted refraction with different platforms in the regular optometric and specialty contact lens clinical setting: advantages, limitations and opportunities.

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Topic
Research Science

Abstract

Purpose
Evaluate the performance of algorithm-based refraction by specialists and non-specialists in non-presbyopic and presbyopic patients and to perform scleral contact lens over-refraction in regular and irregular corneas, using retinoscopy followed by subjective refraction using conventional methods as gold standard comparator.

Methods
In a sequence of 3 different trials, 81 subjects without contact lens or surgical history, 20 scleral contact lens wearers with regular cornea and 10 scleral contact lens wearers were recruited in this non-dispensing cross-sectional comparative trial.

Protocols have been reviewed and approved by the Ethics Subcommittee for Research in Life and Health Sciences of the University of Minho (CEICVS 081/2020).

The Vision-R 700, Vision-S 700 and Vision-R 800 algorithm-based refraction units were used to obtain subjective refraction from the measurements of the Hartman-Shack WAM 800 wavefront aberrometer (EssilorLuxottica, France). Measurements were compared to the subjective refraction obtained by conventional subjective refraction from retinoscopy measurements using as endpoint the maximum plus power to obtain the maximum visual acuity.

Only the right or left eye of each subject was included for statistical analysis using SPSS version 28 (IBM, IL, USA). Pairwise comparisons were performed using T-test or Wilcoxon test, and Bland-Altman plots were used to assess the agreement between refraction methods. Statistical significance was set at alpha=0.05.

Results
For the M component, the mean values for both between measurements taken on the same day for each measurement and those taken on different days is less than 0.25D with 95% confidence intervals of less than 0.5D most cases ($p>0.05$). While the algorithm-assisted semi-automatic subjective refraction performed by a non-specialist can be a good starting point for the specialist to arrive faster to a final prescription, both outcomes are not directly interchangeable ($p<0.05$). Vision-R 800 was used in the contact lens experiments. Results are reported for 20 eyes from 20 patients with regular cornea fitted with scleral

contact lenses and 19 eyes from 10 habitual scleral contact lens wearers with irregular cornea. In scleral contact lens wearers, algorithm-guided over-refraction by a trained optometrist provided less negative refractive values with equal or comparable high and low contrast VA values ($p>0.05$).

Conclusions
Operated by a trained optometrist, algorithm-assisted subjective refraction provides an alternative reliable method to assist in the specialty contact lens clinic. Similar results were obtained in the irregular cornea scleral contact lens wearers.

Disclosure
The study has been funded by Essilor-Luxottica (France) that also made the instruments available to the researchers during the study duration. Authors have no conflicts of interest to disclose.

Oral Presentation #14 (OP14)

Short-wave visible light protection in ophthalmic devices: platforms, characteristics and efficacy

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Topic
Educational

Abstract

Ophthalmic devices with short-wave visible light protection (also known as blue filters) have been marketed more intensively in the last 5 years and are now object of criticism due to the lack of evidence to endorse its efficacy for some of the claimed indications. Generally, there is lack of understanding about the transmission characteristics within the visible spectrum, potential effects on the systemic and eye health and on the indications and efficacy.

Content
The purpose of this lecture is to gather the eye care professional's perception (ECP) on the technical characteristics of these lenses, and update on their potential applications where might provide some advantage to patients and how to communicate the pros and cons to patients with different visual problems.
The literature was searched for independent technical reports characterizing the transmission spectrum, clinical trials, systematic reviews and meta-analysis reporting on the efficacy of short-wave visible light protection incorporated to spectacle lenses, intra-ocular lenses and contact lenses. The session will seek the interaction of the lecturer with the attendees using web-based voting platform PollEverywhere during the lecture and at the end to verify that the concepts presented have been acquired and integrated.

Results
Contrary to the general understanding, most of the devices allow transmission of a great part of the blue light between 440 and 500 nm, and only filter out part of the violet light within the 380 and 440 nm range. For several indications of these filters, research was not able to demonstrate efficacy to improve sleep, alleviate computer vision syndrome, or preserve the macular health. Some recent studies have successfully tested the potential use of some devices to reduce photo stress, the glare discomfort and potentially improved night driving, but more studies are necessary to confirm these potential benefits.

Recommendation
ECP need to be permanently updated on the technical characteristics and literature supporting the optical devices they prescribe to their patients avoiding making claims that are not supported by the more solid and recent evidence. With that, practitioners and industry will provide patients with consistent clinical recommendations, avoiding controversy and protecting their patients.

Oral Presentation #15 (OP15)

Establishing screening methods for non-strabismic binocular anomalies

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Topic
Educational

Abstract

In European countries, the need for vision screening in the first years of life is widely recognized. On the other hand, there is hardly any awareness of screening for non-strabismic binocular disorders (NSBVA) from school age onwards. We compare the available methods and present the Minimum Test Battery we have now established at the Institute of Optometry in Switzerland in teaching and in clinical internships.

Content
NSBVAs have a prevalence of about 30%, which can affect school performance and later professional life. But only few evidence-based screening-protocols exist.

Results
Convergence insufficiency can be detected within less a minute by determining the near point (accommodative object): sensitivity/ specificity 68%/ 70%. NSBVA can be detected with the VERA software within 11 minutes in 45%/ 83%. The BAND study determined a “Minimum Test Battery” taking 7 minutes to detect convergence insufficiency in 80%/ 73% and accommodative infacility in 92%/ 90%. Eye tracking based screening is offered by RightEye and C&Look, but up to now there are no study results on its effectiveness available.

Conclusion
Ideally, screening detects the relevant anomalies and can be carried out quickly, easily and with inexpensive equipment. The Minimum Test Battery meets these criteria. In our view, there are strong arguments for implementing this screening tool into curricula. We also see the potential for further cooperation within health professions to provide better vision care for the community.

Oral Presentation #16 (OP16)

Migraine and other headaches: the role of the optometrist

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Topic
Educational

Abstract

Purpose
Headaches are a common symptom and migraine is the second most common type of headache. The purpose is to systematically review the literature to evaluate the role of optometrists in migraine and other relevant headaches.

Methods
A PubMed search was undertaken for 10 keywords in relevant combinations.
The bibliographies of publications were searched for additional relevant sources.

Results
The search revealed 1250 publications, of which 124 are relevant. There is evidence of a weak association between migraine and astigmatism, anisometropia, decompensated heterophoria, and pupillary anomalies. These correlates are subtle, and it is unlikely that treating them will have widespread applications in alleviating the burden of migraine. In view of the strong association between migraine and photophobia, it is not surprising that tinted lenses have been recommended. The review found no good evidence that one colour of tint or design of notch filter is superior to others. One crossover trial and one fMRI study suggest that Precision Tinted Lenses, prescribed with the Intuitive Colorimeter, may be helpful in migraine, but this finding awaits validation with large randomized controlled trials (RCTs). Concerning non-migraine headaches, although there is widespread belief amongst eye care practitioners that headaches are commonly attributable to refractive errors and binocular vision anomalies, there is a lack of convincing evidence from RCTs.

Conclusion
There is a need for rigorous RCTs to investigate the effect of optometric interventions (refractive and prismatic corrections and tinted lenses) on headaches, including migraine.

Oral Presentation #17 (OP17)

Increase your ability to improve your patient's life: Case studies of thinking "out-of-the-box."

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Topic
Clinical

Abstract

Purpose
Exploring unusual problems occurring in practice. Causes, patient presentation and possible treatment are presented.

Clinical topic – Displaced Spatial Perception
Displaced Spatial Perception (DSP) occurs when the dominant eye is no longer the preferred eye. This confuses the spatial perception.

Case presentation and Actions taken
Case 1. Anisometropic amblyopia with uveitis in the dominant eye. Treated with lateral Yoked prism to reposition the spatial perception closer to the habitual position.

Case 2. Lateral rectus trauma in the dominant eye, aged 3. Treated with differential tinting to reduce cortical integration in the preferred eye and re-aligning the dominant eye.

Case 3. Uncorrected simple astigmatism corrected with standard prescription.
Recommendations/Conclusions: Awareness and treatment of DSP treatment can improve spatial awareness of patients.

Clinical topic – Stress Sensory Stimuli
The Splenius Capitis Muscle, connecting shoulders and head, adjusts relative tension, during vergence movements, to maintain balance. This occurs independent of vision. Problems of this reflex create spasmic stress in various muscles. Patients may present with migraine symptoms.

Patient-presentation, diagnosis, possible treatment regimens are discussed.
Case presentation: Cases from slight to severe are presented. Probable connection of jaw movement, lid flutter to severity of headaches.

Actions taken: Training vergences using 3-bead, 3-metre Brock string, viewed in 9-position of gaze, while moving the head slowly, has shown some reduction in symptoms.
Recommendations/Conclusions: Reducing fear by patient awareness. VT may reduce symptoms.

Clinical topic - Differential Tinting Instead of Patching.
Patching used for amblyopia disrupts binocular integration. Differential tinting, with Brock string training, can improve the VA and build binocular integration. Which cases are applicable, method, and dangers of diplopia, are discussed.
Recommendations/Conclusions: In specific cases differential tinting is preferable to patching.

Clinical topic - Why Do Some People Stop Reading?
Reading problems due to tracking problems caused by changes in skull structure. Cases presented, suggestions for alleviating problem.

Case presentation: Various face, skull changes are presented. Changes occur vertically and in orbital rotation, disrupting the lateral motion of smooth tracking. Ability to maintain binocular single vision during reading becomes problematic. Unilateral skull growth or regression, hyper- or hypo-plasial changes of thezygomatic bone are presented.

Actions taken: Alleviating some problems by prism correction, in various positions of fixation, re-aligns the tracking.
Differential tint may reduce disturbance. Brock string training can increase control.

Conclusions: Practitioners should compare present and previous facial structure. Driving license or ID cards are useful.

Oral Presentation #18 (OP18)

Elevating advocacy for everyone's vision:
How can optometrists, opticians, and academia contribute?

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Topic
Educational

Abstract

Purpose/Background
The lecture emphasizes the importance of advocacy for vision care and the crucial role of optometrists, opticians, researchers, teachers, and students in this field. As advocacy and public health skills are integral to the profession competency framework, all attendees can benefit from this session for their educational, professional, or leadership development.

Method
The lecture is evidence-based, drawing from global reports and research data on eye care needs, including advocacy scope, WHO/UN resolutions, and eye care targets for 2030. It highlights the WHO SPECS 2030 initiative, focusing on effective refractive error coverage.

Results
The results highlight the significant burden of uncorrected poor vision, affecting 1 in 3 people worldwide. Globally, at least 2.2 billion people live with a vision impairment, of which nearly 1 billion cases are either preventable or yet to be addressed. More than 90% of those affected live in low to middle-income countries, nearly 75% are over 50 yo, and 55% are women. The global productivity loss due to unaddressed poor vision is estimated at US$411 billion annually, though 90% of vision loss is preventable with early detection and treatment. Evidence suggests that coordinated advocacy, multisector partnerships, and technology-supported eye care models are critical to advancing sustainable eye care, which, as illustrated by the OneSight EssilorLuxottica Foundation's impact case, benefits millions worldwide.

Conclusion
In conclusion, advocating for vision care, collective efforts, and systemic approaches ensure the scaling up of equitable, accessible, affordable, and efficient eye care delivery for everyone globally. Eye care professionals, individually and through associations, are well-positioned to drive change and assume leadership in this endeavor. The lecture invites everyone to play a role.

Oral Presentation #19 (OP19)

A comparative study on the effect of virtual reality games on visual parameters in young Adults

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Topic
Clinical

Abstract

Purpose
Virtual reality gaming has a significant effect on the accommodating response. The impact of visual characteristics on young adults in preceding and subsequent virtual reality gaming are compared in this study.

Methods
Forty young people (N=40, age 21±4) participated in virtual reality gaming. They were tested for visual acuity, colour vision, extraocular motility, and stereoacuity as a baseline. Pre-gaming tests such as accommodation response, vertical/horizontal phoria, near point of accommodation, near point of convergence, fusional vergence, accommodation facility, smooth pursuit, and saccades were tested. They were then given 30 minutes of VR (Shinecon) immersion, followed by a post-gaming assessment. The Wilcoxon signed rank test was used to independently investigate the mean pre and post accommodation and vergence response, and other visual characteristics.

Results
Substantial differences were noted with respect to accommodative response (Z= 2.86, p value=0.004), and amplitude of accommodation [Z=3.09, P=0.002]. There was also a significant difference in negative fusional vergence pre and post VR gaming session [Z= 3.12, P=0.002], indicating the number of individuals who reported visual issues after 30 minutes of Virtual Reality activity.

Conclusion
The findings demonstrated that exposure to virtual reality gaming resulted in a decline in amplitude of accommodation, accommodative response and negative fusional vergence.

Keywords
Virtual reality (VR), accommodation, vergence.

RAPID-FIRE PRESENTATIONS ABSTRACTS

Rapid Fire Presentation #1 (RF1)

The impact of induced visual degradation on reaction times to hazard detection in younger and older drivers

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Topic
Research/Science

Abstract

Purpose
The ability to detect and react to developing hazards is essential for safe driving. This study investigated drivers' reaction time (RT) on the UK Hazard Perception Test (HPT) in the presence of simulated visual degradation.

Method
Thirty-one younger (mean ± SD age: 24.1±5.5 years) and twenty-eight older drivers (mean ± SD age: 52.8±8.7 years) with corrected-to-normal visual acuity underwent different high-resolution CGI HPT scenarios with and without induced visual degradation. Visual degradation was induced using: (i) +2D of optical blur, (ii) a LEE Fog 5 Filter (cataract simulation) and (iii) two glare sources mimicking headlights. These conditions were employed singly and in combination. Hazard RT was measured with a Cedrus RB540 response box. HPT clips were randomized, and performance with induced visual degradation was assessed two weeks after baseline measures to minimize memorization effects.

Results
Visual degradation significantly increased mean RT for all participants ($p<0.001$), but no significant difference in RT was observed between younger (1.58±1.22s) and older drivers (1.77±2.12s) either at baseline ($p=0.18$) or in the presence of visual degradation (mean diff: 0.10s, 95%CI:0.16-0.36s, $p=0.44$) across all HPTs. There was however a significant delay in mean RT for older compared to younger drivers (mean diff: 0.88s, 95% CI: 0.13-0.16s, $p=0.02$) for a night-time driving scene where conditions (i) and (ii) optical blur and cataract simulation visual degradations were combined.

Conclusion
Visual degradation involving optical and contrast loss reduces RT to driving hazards and has a greater effect for older drivers.

Rapid Fire Presentation #2 (RF2)

Influence of alcohol on vision while driving

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Topic
Research/Science

Abstract

Purpose
This study aimed to comprehensively examine the impact of moderate to high breath alcohol concentrations (BrACs) on visual functions and driving performance.

Method
The research was conducted in two phases: first, under normal daily conditions, and second, utilizing the Widmark formula to standardize BrAC across participants. The primary objectives were to investigate changes in heart rate, stereoacuity, fusional reserves, visual acuity (VA), contrast sensitivity, and driving skills using a rally simulator.

Results
Results revealed a consistent decrease in VA by approximately 1 line, a 15% increase in pupil diameter, a 100% drop in stereoacuity, and a 3PD more esophoric shift in distance phoria among other significant findings. In the subsequent phase, thirty young healthy subjects underwent assessments to understand the influence of moderate alcohol intake on binocular vision, vergence system, and simulated driving performance. Visual function, phorias, fusional reserves, accommodative convergence/accommodation ratio, vergence facility, and driving performance parameters were measured. Moderate alcohol consumption significantly reduced binocular visual performance and vergence function, excluding certain variables. Additionally, a driving simulator revealed a statistically significant deterioration in driving performance after alcohol consumption. Correlations were identified between the deterioration in overall visual function and overall driving performance, emphasizing the impact of visual impairment on driving.

Conclusion
This study concludes that moderate alcohol consumption poses a substantial safety hazard by impairing both binocular vision and simulated driving performances. Recommendations include increased awareness of the dangers of alcohol-induced visual impairment and the implementation of preventive measures to enhance road safety.

Rapid Fire Presentation #3 (RF3)

Testing the feasibility of spectacle lenses using commercially available 3D printing methods.

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Topic
Research/Science

Abstract

Purpose
The increasing availability of additive technologies modernizes production processes and enables the production of objects at home conditions. We checked whether it is possible to print spectacle lenses at home and laboratory conditions using currently available 3D printing methods.

Method
To produce the lenses, we used the most popular 3D printing techniques: Fused Deposition Modelling (FDM) and stereolithography (SLA). The 3D printing process required going through the 3D design stage, cutting the model for printing, printing and final post-processing.

Results
We optimized the lens printing technique, starting from lenses with a diameter of 50 mm, one convex surface and power from -5.00 D to +5.00 D. To achieve transparency, all 3D printed lenses required post-production processing, e.g. mechanical polishing or filling imperfections. Over 80% of 84 lenses achieved the required geometric parameters. We examined the optical and mechanical properties of 8 materials (7 resins) used in the production. Unlike the current production process, in which 70-85% of the starting material turns into waste, 3D printing uses about 8 times less starting material and leads to loss of about 6% of the material during post-processing.

Conclusion
The post-production process is crucial to achieving transparency, but it also introduces geometric distortions. Nowadays, making spectacle lenses at home seems difficult. However, 3D printing technology has great potential to enter the optical industry. Additive methods are tempting techniques open the way to the production of lenses with parameters individually tailored to the needs of patients and eliminating the waste problem in the future.

Rapid Fire Presentation #4 (RF4)

Myopia management for high myopes: a review of literature

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Topic
Research/Science

Abstract

Purpose
Myopia and high myopia are recognized as major public health concerns. Although the prevalence of high myopia in young children is low, 10-20% of high school children in Asia have high myopia and one in three patients with high myopia develop visual impairment with age. Most myopia management studies and strategies focus on low and moderate myopes, relatively little is known about myopia management in high myopes.

Method
A comprehensive literature search was undertaken to identify literature relevant to myopia management of high myopia and complications of high myopia (≤-6.00D) using relevant search engines and key words. Relevant articles published in English were analyzed and included.

Results
Ten studies evaluating the efficacy of optical and pharmacological interventions on axial elongation and myopic refractive error for high myopia management were identified. A statistically significant reduction in progression of refractive error in high myopes was reported when using 0.05% atropine. Defocus Incorporated Multiples Segment lenses had lower efficacy in controlling high myopia progression compared to moderate and low myopia. Ortho-k lenses were equally effective in reducing myopia progression in low, moderate and high myopia. All myopic patients have an increased risk of myopic macular degeneration, retinal detachment, cataract and glaucoma, the highest risk with high myopia.

Conclusions
High myopia has a significant impact on quality of life, and significant risk of pathological complications and vision impairment. Young children, excluding those with some syndromic associations, who are fast progressing moderate and high myopes require early intervention and close monitoring.

Rapid Fire Presentation #5 (RF5)

Red-light therapy: A new myopia management intervention

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Topic
Educational

Abstract

Background
According to Holden et al., 2016 the prevalence of myopia and high myopia will increase in numbers to 5 billion people and 1 billion people, by 2050, respectively. Therefore, eye care practitioners must try to reduce these numbers, as best as possible, by using proven evidence -based interventions to manage myopia. There are numerous interventions available.

Topic
Repeated Low-level Red-Light Therapy (RLRL) is a revolutionary, recently revealed intervention.

Content
The purpose of this presentation is to explain this form of therapy as an alternative treatment for myopia control in children, based on the literature available to date. This intervention for myopia management is based on the use of a desktop light therapy device namely, “Eyerising Myproclear” Myopia Management Device. It emits red light and is intended for use at home under parental supervision. I will explain in detail the duration of each treatment session and the recommended frequency for using the device. This device has been in use for the treatment of amblyopia, in China. The treatment plan will be explained in detail.

Results
There are interesting results from the study done by Xion Ruilin et al., 2022 which shows that there is no thinning of the macular choroidal thickness after being exposed to RLRL.

Conclusions
We must ask ourselves whether it’s premature to celebrate. There is some controversy over the safety of the device which will be described. This presentation will show both sides of the RLRL device (advantages and safety skepticism) which has been published to date.

Rapid Fire Presentation #6 (RF6)

Monitoring myopia control: Biometry-technology options

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Topic
Clinical

Abstract

Background
The prevalence of myopia has increased extensively worldwide, spanning not only East Asia but also Europe. Studies have shown that children engaging in prolonged near work, spending less time outdoors, and having myopic parents face an elevated risk of developing myopia. Therefore, the World Council of Optometry asserts that myopia management should be the standard of care provided by optometrists. Once the intervention for managing myopia progression has been decided, optometrists must monitor its progress. This can be achieved through cycloplegic refraction or by measuring the axial length of the eye or both.

Purpose
This presentation will be particularly beneficial for practitioners who, due to constraints, are unable to conduct cycloplegic refraction and must rely on measuring the axial length of a child's eye to monitor myopia progression.

Content
This presentation will elucidate the significance of measuring axial length and how changes in axial length correspond to refractive changes (i.e., a 1mm change in axial length corresponds to a 2.5D change in myopia [4].
The presentation will clarify the distinctions between an optical biometer and an ultrasound biometer and why optometrists use an optical biometer to measure axial length of the eye rather than an ultrasound biometer. Measuring and monitoring axial length is important to assess the risk of myopia and after beginning myopia management. Axial length measurement and comparing measurements, can confirm the treatment effect.

Results
According to a recent study by Jiang et al. (2023), there is a clear association between the elongation of axial length and the myopic spherical equivalent among children and adolescents, with a correlation observed with age.

Recommendations/Conclusions
This presentation will delve into the specifics of the prominent optical biometers utilized for measuring axial length. Axial length measurement should be considered the gold standard measurement of myopia management because not all optometrists can conduct a cycloplegic refraction but every optometrist can conduct axial length measurement.

Rapid Fire Presentation #7 (RF7)

Binocular vision considerations before myopia control

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Topic
Educational

Abstract

This lecture will consider binocular vision and accommodative issues in pediatric patients prior to implementing any myopia control management techniques.

Content
Controlling the progression of myopia in children is an important area of pediatric optometric management. It is important, however, to determine any binocular vision issues or accommodative issues prior to implementing myopia control. The definition of pseudo-myopia and its causes will be discussed along with examination techniques. Defining common binocular and accommodative problems will also be a part of this presentation.

Results
Determining which binocular and accommodative tests during the exam will be a part of this lecture. Clear procedures for evaluating a patient's binocularity and accommodation status, such as cover test, vergence ranges, accommodative amplitude testing, and accommodative facility testing will be discussed. Options for improving issues with binocular and accommodative dysfunction such as vision therapy and low plus glasses will be presented.

Recommendations
Prior to managing young patients with myopia control options such as Atropine drops, Orthokeratology, soft contact lenses, or myopia control spectacles- it is important to fully assess their accommodative and binocular abilities. Any deficiencies in these areas should be addressed prior or during myopia control procedures to ensure best results.

Rapid Fire Presentation #8 (RF8)

Effect of a low concentration of cross-linked hyaluronic acid and phospholipids artificial tear on the pre-lens tear film of soft contact lens wearers

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Topic
Research/Science

Abstract

Purpose
To evaluate the effect of an artificial tear (AT) with the combination of 0,1% cross-linked hyaluronic acid (HA) and phospholipids on pre-lens tear film stability (PLTFS) and lipid layer thickness (LLT) in soft contact lens (SCL) wearers.

Methods
18 subjects after 30min from the fitting of SCLs in OmafilconB received two drops of AT in Right Eyes and two drops of saline solution (SS) in Left Eyes. The noninvasive Keratograph tear breakup time (NIKBUT) and the LLT were measured respectively using the Oculus Keratograph 5M and the Lipiview II with SCLs fitted prior to (baseline) and 15, 30 and 60min after drops instillation.

Results
The AT demonstrated a significant increase for NIKBUT compared with baseline (5.9±1.82sec) at all time points (15min 8.9±1.56sec, 30min 7.8±1.94sec and 60min 6.9±1.29sec) ($p<0.05$). SS demonstrated a significant increase for NIKBUT compared with baseline (6.0±1.82sec) just at 15min (6.7±1.92sec) and a significant reduction at 60min (4.7±2.12sec). The LLT presented a significant increase using the AT compared with baseline (55.2±16.8nm) at all time points (15min 81.3±18.2nm, 30min 69.6±14.4nm and 60min 64.8±12.8nm) ($p<0.05$). Instead using SS the LLT presented no significant difference between baseline (56.9±14.1nm) and time points 15 and 30min ($p>0.05$) and a significant reduction at 60min (48.4±13.6nm) ($p<0.05$).

Conclusions
The AT used during SCL wear increased the PLTFS and the LLT. These results could be justified by the presence of phospholipids that can increase the LLT reducing the tear evaporation and improving the PLTFS. The prolonged effect could be due to the activity of HA that can bind with the CL surface.

Rapid Fire Presentation #9 (RF9)

Power profile and sagittal height differences of soft contact lenses indicated for myopia control

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Topic
Research/Science

Abstract

Purpose
The aim of this study was to examine the differences in power profile (PP), sagittal height (SAG), diameter (OAD), and base curve equivalent (BCE) of the most common soft CLs used for myopia control.

Methods
Eight different soft CL indicated for myopia control were selected for the study. Three lenses each in power -2.25D were stored in standard saline solution for 24hrs before to start the measures. The PP was measured using the NIMO EVO optical lens analyser for a temperature of 20°C. The SAG, OAD and BCE were measured using a spectral domain OCT-based lens analyser (Optimec is830) for a temperature of 20°C and 35°C to simulate the eye temperature.

Results
PP of CLs tested vary widely between the different designs presenting multiconcentric, multifocal, torus and EDOF profiles. Considering an optical zone measured of 8mm also the difference between the minimum and maximum power between the different designs are high with a higher difference >5.00D for the torus lens and a lower difference of 2.25D for the multiconcentric design. The lenses tested were different between them for the SAG, OAD and BCE too; changes for these CL parameters were found on the same CL design also as the effect of different temperatures All the parameters measured at 20°C and 35°C are shown in table as mean ±SD.
image.png

Conclusions
Important differences between the CLs tested were observed for the PP characteristics and for the CL parameters at 20°C and 35°C. The temperature increases induced parameter changes in all the CLs analysed with a shrinkage.

Rapid Fire Presentation #10 (RF10)

Fitting corneal rigid contact lenses - What have we lost?!

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Topic
Clinical

Abstract

Background
As early as 2003, Nathan Efron observed a significant decrease in the fitting of rigid contact lenses, which had dwindled to only 10% of all new contact lens fittings. Efron predicted that by 2010, rigid contact lens fitting would be nearly obsolete, a remarkable shift considering that in 1970, nearly 100% of new fittings involved rigid lenses. In his 2010 article, Efron outlined ten reasons why rigid lenses were becoming less commonly fitted compared to previous years. Despite this decline, there are still numerous reasons to consider fitting rigid contact lenses.

Topic
The focal point of this discussion revolves around the questions: Is the fitting of rigid corneal contact lenses an art or a science? Is it crucial to recognize that fitting corneal rigid gas permeable lenses (RGPs) remains an essential and valuable aspect of a contact lens fitter & toolkit, not relegated to the past?

Content
The content of this study encompasses:
1. The rationale behind fitting rigid corneal lenses, exploring crucial fitting procedures essential for achieving proper alignment between the contact lens and cornea, employing fluorescein and illustrated slides to demonstrate these procedures effectively.
2. Reasons against fitting rigid corneal lenses.
3. Examination of empirical or diagnostic trial lens fitting.
4. The debate on whether fitting rigid corneal lenses is an art or a science.

Results
This presentation aims to reinforce the significance of RGP lenses in contemporary contact lens practices, emphasizing that their importance persists despite the plethora of alternative options available today. While soft contact lenses dominate the global market for new lens fittings, RGP lenses still account for 8% of these fittings, with a substantial portion dedicated to RGP lens refits.

RGP lenses find common application in orthokeratology. Notably, in early-stage keratoconus, RGP lens fitting remains a favourable choice. The evolution of RGP manufacturing technology, progressing from handcrafted to computer-designed lenses, has significantly expanded the range of available designs, sizes, shapes, and refractive options.

Conclusions/ Recommendations

1. The enduring relevance of fitting corneal rigid contact lenses persists in contemporary practice.
2. Is the fitting of RGPs an art, a science, or a fusion of both?

Rapid Fire Presentation #11 (RF11)

How technology can help to bring your scleral lens fits to the next level

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Topic
Educational

Abstract

Topic/Area
Specialty contact lenses.

Content
Scleral lenses are increasingly used to treat pathologies or to restore vision. They can now be manufactured taking into account the particularities of ocular physiology. However, it is essential to have the means to adequately assess corneal and conjunctival profiles beyond slit- lamp observation. This lecture illustrates how to use the profilometer, aberrometer and optical coherence tomograph to initiate and optimize scleral lens fitting.

Results
Three case reports are presented.
#1 Corneal graft patient referred for scleral lens fitting, after multiple unsuccessful attempts. Profilometry showed a highly asymmetrical conjunctival surface. The discussion focuses on options for improving lens fitting, taking into account this profile of the conjunctiva, the limbus-conjunctiva junction and the oval-shape of the cornea.

#2 Keratoconus patient. He complains of reduced vision compared with his glasses. Aberrometry reveals a high level of HOAs. Discussion turns to ways of modify scleral lens design to compensate for these optical effects.

#3 Patient complaining of discomfort and reduced vision caused by debris in the reservoir, after 4h00 of wear. OCT enables us to identify areas where the fit can be improved. The discussion focuses on the reasons for mid-day fogging and the optimal relationship between the scleral lens and the ocular surface.

Conclusion
Technology can help to design and to refine SL fitting process.

Rapid Fire Presentation #12 (RF12)

Validation study of the vision-STM 700: comparing smart and standard refraction methods to gold standard

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Topic
Clinical

Abstract

Purpose
To present the results of a validation study performed on the Vision-STM 700, a novel compact instrument intended for subjective refraction, a phoropter combining integrated screens and charts with a tunable lens module. We compared the subjective ocular refraction achieved using the Vision-STM 700 equipment with both Smart and Standard methods to the Gold Standard Refraction (GS) performed with a traditional motorized phoropter.

Methods
We assessed refraction with the VisionSTM-700 and compared it to the APH500 (Essilor Instruments) results. Protocol involved two Vision STM-700 refractions (Smart and standard exams) and a reference APH 500 GS Exam for each eye. The study took place in Spain in April-May 2021, 61 Caucasian participants were included, aged 37.5 ± 15.0 years, with a refractive error range of -9.25 to +4.00 D (mean -1.30 ± 2.60 D). The maximum astigmatism recorded was -3.50 D. Testing occurred in controlled conditions, with random sequencing to prevent bias.

Results
Refractive results were converted into power vectors for simplified M, J0, and J45 analysis. For spherical vector M (mean): Vision-S™ 700 Standard = -1.26 ± 2.58 D, Smart = -1.27 ± 2.56 D, APH = -1.30 ± 2.58 D. For astigmatic vectors J0 (mean): Vision-S™700 Standard = 0.11 ± 0.45 D, Smart = 0.09 ± 0.44 D, APH = 0.11 ± 0.45 D. For astigmatic vectors J45 (mean): Vision-S™ 700 Standard = 0.06 ± 0.17 D, Smart = 0.05 ± 0.17 D, APH = 0.03 ± 0.18 D. Comparison of spherical equivalent refraction between APH500 and VS700 using Wilcoxon test showed non-significant results differences: APH500 vs. VS700 Standard (p=0.243) and APH500 vs. VS700 Smart (p=0.437).

Conclusion
The Vision-S™700, a new compact refraction system, accurately performs subjective refractions when used by practitioners employing both traditional subjective refraction methods and the integrated Smart Programs. No clinically significant differences were measured when comparing Gold Standard subjective refraction performed with APH500, and the Vision-S™700 when using either Smart or Standard methods.

Rapid Fire Presentation #13 (RF13)

Age-related normal limits for visual acuity and contrast sensitivity in photopic and mesopic lighting: Occupational and clinical applications

Author

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Topic

Research/Science

Abstract

Purpose

Occupational vision involves both photopic and mesopic light levels. Lower light levels cause significant changes in visual performance. Early-stage, retinal diseases often cause greater worsening of spatial vision in the mesopic range. It is of interest to establish normal age-limits for monocular and binocular spatial vision under both photopic and mesopic conditions.

Methods

Visual Acuity (VA) and Functional Contrast Sensitivity (FCS) were measured with both contrast polarities using the Acuity-Plus (AP) test. Mean and ±2.5s limits were calculated within each 5-year subgroup for all participants meeting normal sight criteria. Mean values and upper and lower threshold limits for VA and FCS as a function of age were established.

Results

Of 382 participants, 285 passed the selection criteria for normal aging. For each of the 16 stimulus conditions age-related normal limits were calculated. Mean photopic VA and FCS thresholds and overall variability remain largely invariant below 50 years of age. In mesopic conditions, VA and FCS start with much larger mean values, and both thresholds and inter-subject variability increase more rapidly above 30 years.

Conclusions

Age-limits of spatial vision for monocular and binocular viewing under photopic and mesopic conditions with both positive and negative contrast optotypes were established using a single test. The results can be used to identify subjects that fall outside the normal threshold limits for spatial vision. Clinically, this is useful for early detection of retinal abnormalities. Furthermore, the results can be useful to screen for spatial vision in working environments where normal spatial vision is needed.

Rapid Fire Presentation #14 (RF14)

Rehabilitation of visual functions in people with visual impairment

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Topic
Clinical

Abstract

Purpose and Introduction
New technologies, touch screens, electronic devices and special optical aids, offer clients with reduced visual functions other ways how to improve their vision in the rehabilitation process. In certain situations, depending on visual impairment, it is necessary to educate these individuals and recommend procedures for optimizing and making maximum in use of such aids. The aim of this presentation is the comparison and use of individual types of magnifying aids for clients with various visual conditions. The is focused on the rehabilitation of visual functions and the preference for an appropriate digital magnifying systems.

The rehabilitation of visual functions draws mainly from the traditional fields of ophthalmology, optometry, orthoptics, occupational therapy and sociology. However, psychology is very important. A certain role is played by the fact that modern technologies and services are increasingly available for visually impaired individuals, which they can use in their daily lives.

Assessment of functional vision and the rehabilitation process for visually impaired individuals is essential for the correct assessment of routine tasks that a visually impaired person performs on a daily basis. The highest demands are mainly placed on close-up viewing.

Results
For the study, 128 individuals participated who were interested in improvement of their visual functions due to an eye disease and whose distance visual acuity with the best possible spectacle correction was 0.7 or worse. The rehabilitation process and the selection of the aid was carried out in several different groups: Group 1 (n = 20) with age-related macular degeneration (AMD; average age of 65.2±8.7 years). Applied rehabilitation aids: Digital (electronic) magnifier (n = 11); Classic magnifying glass (n = 2); Near-sighted glasses (n = 3); Combination of more aids (n = 4); Group 2 (n = 20) with diabetic retinopathy (DR; average age of 63.8±9.1 years). Applied rehabilitation aids: Digital (electronic) magnifier (n = 8); Classic magnifying glass (n = 4); Near-sighted glasses (n = 3); Combination of more aids (n = 5); Group 3 (n = 20) with cataracts (in various stages who for various reasons do not yet want to undergo surgery; average age of 68.1±5.4 years). Applied rehabilitation aids: Digital (electronic) magnifier (n = 9); Classic magnifying glass (n = 2); Close up glasses (n = 5); Combination of more aids (n = 4); Group 4 (n = 20) with glaucoma; average age of 70.2±10.7 years). Applied rehabilitation aids: Digital (electronic) magnifier (n = 13); Close up glasses (n = 2); Combination of more aids (n = 5); Group 5 (n = 20) with a combination of multiple disabilities (e.g. glaucoma and cataract, VPMD and cataract, etc.; average age of 67.1±10.7 years). Applied rehabilitation aids: Digital

(electronic) magnifier (n = 11); Classic magnifying glass (n = 1); Near-sighted glasses (n = 3); Combination of more aids (n = 5)

Conclusion

Each aid, designed for individuals with reduced visual functions, has its advantages and disadvantages. Therefore, they cannot be recommended across the board and to every client. It is always up to eye care practitioners, low vision therapist respectively, to correctly evaluate the needs and possibilities of their clients and accordingly recommend an adequate aid for improving visual functions. In the study, we reached similar conclusions as in the compared studies. And the fact that individuals with visual impairments prefer modern digital systems when rehabilitating their visual functions, or rather use a combination of several aids for a specific activity, for example the use of reading glasses and electronic aids.

Rapid Fire Presentation #15 (RF15)

A novel test for visual cognition in school children

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Topic
Research/Science

Abstract

Background
Early detection of visual deficits in children can lessen the impact of learning difficulties in the classroom. The aim of this study is to investigate a novel dot pattern task as a potential tool for school visual cognition screening programs.

Methods
This study was carried out among typically developing school children aged 5 to 12 years. Children with vision 6/9 or better without ocular comorbidities were included as a part of vision screening program. The visual cognition tests – Novel Dot Pattern 'A' (NDPA), the Wold Visuo- Motor Test (WVMT), and the Rosner Test for Visual Analysis Skills (TVAS) were administered in all subjects. Descriptive statistics, normative data, and percentiles (median and IQR), and interclass correlation coefficient were computed.

Results
A total of 274 children were included of which 142 were females. The mean (SD) age was 8.57 (2.28) years. The median (IQR) of the NPDA was 5 (2) and TVPS was 10 (2). The mean R (95% CI) interclass correlation coefficient was 0.839 (0.602,0.941) for the TVAS and 0.885 (0.604,0.963) for the NDPA in the repeatability test.

Conclusions
The normative data and percentile scores of the three tests show a developmental trend in visual cognition. Therefore, NDPA can be used as a simple screening tool to screen for visual cognition deficits in children.

Rapid Fire Presentation #16 (RF16)

Prevalence of accommodative and binocular vision anomalies in UK primary school children and their association with reading ability

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Topic
Research/Science

Abstract

Purpose
Limited data exist on the prevalence of accommodation and binocular vision (BV) disorders in UK, primary-school children. Here we determine the prevalence of accommodative/BV anomalies in UK schoolchildren and examine their association with reading ability.

Methods
Accommodation and BV measures were gathered using a standardised-testing approach in 109primary-school children (8-10 years) in two Yorkshire schools. Glasses were worn if the child already had them. The result for each accommodation/BV test was compared to age-appropriate, normative data and on this basis, a pass/fail decision for that test was made. Different criteria, ranging from strict to lenient, were used to make a diagnosis of an accommodation or BV disorder. Reading ability was measured using the 'York Assessment of Reading for Comprehension' and the results were used to define 3 groups (low-, medium- and high-reading ability).

Results
Even with strict diagnostic criteria, BV/accommodation disorders were found in 12.8% of the cohort, with convergence- and accommodative-insufficiency the most common types. Accommodation/BV anomalies were found in children of all reading abilities; there was no significant difference between the proportions of children with BV/accommodative disorders in the high-, medium and low- reading groups ($p>0.05$).

Conclusions
Accommodative/BV disorders may be present in around 1 in 8 children. Our results indicate that good reading ability is not a reliable signal that normal visual function exists. Rather, accommodation/BV anomalies may exist in children with a range of reading abilities. Hence, all children presenting for an eye examination should also have their accommodative- and BV- status evaluated.

Rapid Fire Presentation #17 (RF17)

Comparison of cycloplegia at 10-, 20- and 30-minutes following proxymetacaine and cyclopentolate instillation in white 6-7-year-olds

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Topic
Research/Science

Abstract

Purpose
Accurate refraction can be performed 20 minutes after instillation of 0.5% proxymetacaine hydrochloride and 1.0% cyclopentolate hydrochloride in white 12-13-year-olds. This study investigated whether these findings persist in 6-7-year-olds, examined the effect of pre-instilled proxymetacaine hydrochloride on the level of cycloplegia after 10-, 20-, and 30-minutes and determined whether iris colour affected cycloplegia efficacy.

Methods
Participants were 91 white 6-7-year-olds (182 eyes, 53.8% male, n=49). Iris colour was classified into three categories: blue (n=116), brown (n= 46), and hazel-green (n=20). One drop of proxymetacaine hydrochloride 0.5% followed by one drop of cyclopentolate hydrochloride 1% was instilled into participants' right eye, and one drop of cyclopentolate hydrochloride 1% only was instilled into the left eye. Spherical equivalent refraction (SER) was measured by autorefraction (Shin-Nippon Auto Refkeratometer) 10-, 20-, and 30-minutes post-instillation. Paired t-testing, correlations, linear regression analysis, and equivalence and non-inferiority testing were performed.

Results
There was no significant difference in cycloplegia level at 20- and 30-minutes between right (mean (standard deviation) SER difference) (0.08(0.26) D) and left eye (0.13(0.31) D) measurements ($t=-1.158$, $df(1,90)$, $p=0.25$). SER measurements were equivalent at 10- and 30-minutes in right eyes (90%CI: -0.477 to 0.213) and non-equivalent in left eyes (90%CI: -0.535 to 0.157). Eye colour did not significantly affect SER values following cycloplegia (all $p>0.05$).

Conclusion
Accurate refraction values can be obtained in white 6-7-year-olds 20-minutes post-instillation of 1.0% cyclopentolate alone and 10-minutes post-instillation of 0.5% proxymetacaine and 1.0% cyclopentolate. Eye colour did not affect the level of cycloplegia post-instillation of eyedrops in white 6-7-year-olds.

Rapid Fire Presentation #18 (RF18)

Diplopia: Role of optometrist after ocular surgeries

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Topic
Clinical

Abstract

Topic
The figure of optometrist can prove useful following ocular surgeries. In fact, in sporadic cases, after surgery, patients may report slight diplopia and can be helped through the use of optical correction.

Content
The aim of this report is to describe all the possible causes of binocular diplopia after ocular surgery: optical or refractive reason, preexisting retina disorder, preexisting heterophoria/strabismus and fusion disruption. There will be three clinical case report useful for the daily practice.

Action taken
Optical, Optometric and Ophthalmologic solutions and strategies will be considered to resolve diplopia. These will include optical prisms and surgery procedures.

Recommendation/Conclusion
Optometric binocular vision check-up after ocular surgery, in addition to subjective refraction, should be considered in some special cases.

Rapid Fire Presentation #19 (RF19)

Hyperopia and school performance in schoolchildren in Ireland

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Topic
Research/Science

Abstract

Aim/Purpose
Explore the relationship between hyperopia (≥+3.50D) and parent-reported school-performance in Irish schoolchildren.

Methods
Participants were 1,612 schoolchildren (722 aged 6-7 years, 890 aged 12–13 years) in randomly selected Irish schools. Parents/guardians reported school-performance as (a) much better than classmates (high-performance), (b) about the same as classmates (average-performance), and (c) not as well as classmates (low-performance). Measurements included logMAR visual acuities (VA) (with spectacles if worn) in the distance (3m) and near (40cm); accommodative amplitude (RAF Rule); and cyclopleged autorefraction.

Results
Mean ±standard deviation (SD) LogMAR distance VA was poorer in low-performing participants (6-7-year-old: low-performing 0.15±0.25, average-performing 0.00±0.15, high-performing -0.01±0.15, p<0.001, 12-13-year-old: low-performing 0.00±0.18, average-performing -0.03±0.12h high-performing -0.05±0.18, p<0.001).
Mean ±SD LogMAR near VA was poorer in low-performing participants (6-7-year-old: low-performing 0.23±0.35, average-performing 0.08±0.22, high-performing 0.07±0.18, p=0.01, 12-13-year-old: low-performing 0.07±0.18, average-performing 0.04±0.19, high-performing 0.03±0.12, p=0.02).

Mean ±SD accommodative amplitude (D) was poorer in low-performing 6-7-year-olds (low-performing 11.4±4.9, averaging-performing 13.7±3.8, high-performing 14.0±4.2 p<0.001), but not in 12-13-year-olds (p=0.24).

Controlling for confounders, socioeconomic disadvantage (p=0.003), male gender (p=0.01), and traveler ethnicity (p=0.008), uncorrected hyperopia (≥+3.50D) was associated with low performance (OR = 2.7, CI:1.1-7.0, p=0.04); 24% of uncorrected hyperopic, 9.5% of corrected hyperopic, and 8.6% of emmetropic 6-7-year-olds reported low-performance.

Conclusions
Low-performing schoolchildren may not have adequate near VA or the accommodation required to sustain near fixation. Children with academic performance challenges should have a comprehensive eye examination, including an assessment of near VA, and objectively measured accommodation to detect potential vision problems for early intervention, minimising any negative impact on educational outcomes.

Rapid Fire Presentation #20 (RF20)

Broaden the view of optometry students with social responsibility

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Topic
Educational

Abstract

Research's competences for optometry students and for optometrists in the field is not only needed for clinical reasoning and evidence-based practice. Students needs to be educated to become curious, critical and are able to work methodological.

Method
These days innovative research and social responsibilities are added in the curriculum. The students are educated to conduct a research, social based with a link to optometry. And by creating a student journal optometry poster session afterwards.

Results
Students are more aware of the social aspects outside the practice and the way the difference can be made by innovative research towards an implementation.

Discussion can be made if credit points need to be used of the optometry curriculum for these topics.

Conclusion
Students are educated as a professional for the near future, aware of their roll at and around the practice they work, with an eye to the more vulnerable in the society.

Rapid Fire Presentation #21 (RF21)

Design of the part-time Bachelor's degree in optometry. Sharing best practice

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Topic
Educational

Abstract

Purpose
Sharing best practice in Optometry education. This lecture provides the participants with information about an innovative approach to optometric education.

Background
In response to a market research initiative conducted in 2018, which garnered 75% affirmative responses from 998 participants, UAS introduced a part-time optometric degree course tailored for dispensing opticians and ophthalmic technical assistants.

The programme, designed to foster the integration of theoretical knowledge with practical experience, hinges on several critical components. Foundational principles and knowledge are taught at UAS through online resources and face-to-face interactions. Seasoned optometrists in the workplace administer a substantial portion of practical and corrective feedback. The workplace-based supervisors are active participants in the feedback loop. They receive specialised training, facilitated by faculty members, in effective coaching strategies to guide and support students through their studies.

Results
Out of the 25 students who started, 22 are now in year three, and 18 are on course for graduating within 3.5 years of the 4-year programme. Programmatic assessments and the differences in background have given rich information on how students are performing and how our programme is delivered.

Conclusion
This holistic approach represents a paradigm shift, where the workplace and academia converge seamlessly to educate skilled and competent professionals to meet the demands of the optometric field. Through this dynamic co-design process, the programme not only addresses the demands of today's workforce but also paves the way for a more adaptable and responsive education model in the years to come.

Rapid Fire Presentation #22 (RF22)

Transient monocular vision loss - migraine or brain tumour

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Topic
Educational

Abstract

Purpose/Background
TMVL can be a common finding in everyday practice with aetiologies from the benign of Dry Eye to the more severe of Papilloedema. This presentation will list the top 10 known aetiologies.

Methods
We will concentrate on the most common sub specialties spending time on the more severe and working our way down to the simple benign presentations.

Results
Thorough History and listening to the patients' general health and symptoms are paramount. However sometimes patients may be asymptomatic or may not need even mention to it and you may have to probe the patient in a very specific manner in your form of questioning.

Conclusion
TMVL can lead to an emergency ophthalmological referral or it may just need patient reassurance. Intuition and experience all play a part in this difficult conundrum which will be in every one's consulting room on a regular basis, especially with an aging population.

Rapid Fire Presentation #23 (RF23)

Corneal imaging and densitometry measurements in keratoconus patients to monitor disease progression and treatment outcomes after contact lens or Intacs treatment

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Topic
Research/Science

Abstract

Aim
The aim of this study was to compare the pre- and posttreatment corneal densitometry and corneal thickness value of keratoconus (KCN) patients managed via contact lenses (CLs) or by both intrastromal corneal rings and contact lenses.

Patients and methods
This prospective study was performed at the Manchester Royal Eye Hospital, UK. Patients were recruited before treatment and followed up for 12 months. Data of corneal densitometry and corneal thickness were collected using the Oculus Pentacam at the pre-treatment visit and post treatment visit at 12 months. The CL fitting was done by one optometrist at MREH. The fitting included analysis of the topography results and slit-lamp examination. The fitting procedures followed standard methods for keratoconic patients. The intact surgery was done by one eye corneal surgeon at MREH. Two Intacs segments of 150–350 μm thickness for each eye were used to embrace the steepest keratoconic meridian at a depth between 300 and 400 μm. The aim was to achieve maximum flattening of the cornea. 23 all the cases were fitted with RGP CL based on unsatisfactory VA with spectacles or soft CL correction. The measurements from the Pentacam images were compared for pre and post treatment for both groups at 12 months. The same measurements were compared between groups at 1 year post treatment.

Results
Corneal clarity significantly differs between both groups at pre-treatment at zone 0–2 mm for the anterior layer (P=0.002). The same diversity is present at zone 2–6 mm for the anterior layer (P=0.003) and posterior layer (P=0.008). The corneal clarity diversity found was not statistically significant at 12 months post treatment (P>0.05). Corneal thickness was found to be statistically significantly different between pre-treatment and post treatment for the CL group for central corneal thickness (CCT) and thinnest area (P=0.01 and P=0.02), respectively.

Discussion
This study shows that KCN management with Intacs was found to be effective in maintaining corneal clarity for a longer time than that with CL alone. On the other hand, corneal clarity reduces with disease progression in cases managed with CLs only. Analysis of Oculus Pentacam images provides an objective evaluation to monitor the corneal status after these different pathways of management.

Rapid Fire Presentation #24 (RF24)

Important ocular effects of diabetes mellitus

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Topic
Clinical

Abstract

Diabetes affects approximately 60 million Europeans. Many of them, especially those with poor blood sugar control, will suffer from changes to their vision and deterioration of their ocular health. This lecture will help optometrists identify common ocular effects of diabetes and implement appropriate management strategies.

Content
One common side effect is myopic shifts from high or fluctuating blood sugar. Excess glucose can increase the lens' refractive index, increasing myopia. As blood sugar levels decrease and stabilize, myopia will decrease, and the prescription will stabilize. Diabetic cataracts produce hyperopic changes, decreased vision, and excessive glare. Cataract surgery may be a more effective treatment than glasses in these patients. Diabetic retinopathy is another complication and is classified as mild, moderate, severe, or proliferative. Each is associated with increasing presence of microaneurysms, retinal hemes, cotton-wool spots, exudation, and finally, neovascularization at the proliferative stage. There is also an increasing risk of vision loss, requiring closer monitoring by an eye care provider. Macular edema can happen at any retinopathy stage and results from fluid leakage from damaged retinal capillaries or neovascularization in the macula. Symptoms include loss or distortion of vision, and hyperopic shifts. These symptoms can fully resolve with appropriate treatment.

Actions To Take
Optometrists should delay prescribing glasses for patients with macular edema and refractive error shifts from uncontrolled blood sugar. Patients with diabetic retinopathy and macular edema require more frequent posterior segment exams to prevent vision loss.

Conclusion
Optometrists should know common ocular effects of diabetes and their appropriate management to preserve vision and ocular health.

Rapid Fire Presentation #25 (RF25)

Use of multiple imaging modalities to differentiate mild optic disk edema from optic disc drusen: A case study

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Topic
Clinical

Abstract

Mild optic disk edema and optic disk drusen are two clinical findings that are important to differentiate due to their different implications for patient's ocular and systemic health. This can be adeptly illustrated in the following patient case.

Case Presentation
A 30-year-old female presented for a comprehensive eye exam and no significant visual complaints. On examination, her only significant exam findings were slightly elevated optic disk margins in the superior, inferior, and nasal quadrants on fundoscopy. No obscuration of the blood vessels was seen. Fundus autofluorescence showed hyper-fluorescence of the optic nerve head which suggested edema but did not rule out buried drusen. OCT showed a significant increase in RNFL thickness corresponding to the elevated areas. In addition, small, hypo-reflective areas were noted on Raster scans but no anterior angling of Bruch's membrane. These findings were characteristic of both edema and drusen. B Scan was then performed, which revealed elevated optic nerves with no hyperreflective areas present suggesting optic disk edema.

Actions Taken
Based on the findings, optic disk edema was diagnosed. The patient was sent urgently to the hospital where the diagnosis was confirmed. Oral acetazolamide was prescribed by her neurologist and edema slowly resolved.

Recommendations/Conclusions
This case highlights the strengths and limitations of various imaging modalities and examination techniques available to optometrists to differentiate mild optic disk edema from optic disk drusen. Use of OCT, B-scan, and fundus autofluorescence together with fundoscopy are critical for making this important clinical distinction. If one test provides inconclusive findings, more testing should be performed.

Rapid Fire Presentation #26 (RF26)

A deeper understanding on measuring the visual acuity (VA)

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Topic
Clinical

Abstract

Purpose
The recorded VA can influence patients' legal and medical status. The lecture, and research investigation, consider factors influencing patient's response. Optotypes have varying amounts of contour interaction and secondary cues. The patient's psycho-dynamic behaviour, experience and cultural differences, influence the result. A design of optotypes and method of examination are presented. A research trial is presented comparing existing optotypes and those being proposed.

Method
Success rate of recognition of different designs of optotype, at different levels of VA. Independent researchers, plus the author, examined the right eye of 28 randomly chosen subjects, excluding those with oblique astigmatism or reduced vision. Two test charts were presented. The first contained 8 letters (4 accepted, 4 non-accepted); standard optotype numbers; new design of optotypes, C chart. Success in recognition, at different levels of size, was compared. Results were influenced by above-mentioned factors. The second chart investigated the validity of using the clinically accepted "recognised-to-unrecognised" changes as opposed to the scientific method of "unrecognised-to-recognised".

Results and Analysis
The results validate excluding non-accepted letters (Y, X, A, T) but suggest excluding V, H. The influence of contour interaction and secondary cues is validated. The validity of random optotypes, without a control system, used in a single line of optotype is questioned. The proposed optotypes, of graded levels of contour interaction and secondary cues, are validated, also the use of a wave chart for non-verbal or culturally disadvantaged patients. Use of "recognised-to-unrecognised" is not scientifically valid, traditional charts should be changed.

Discussion and conclusion
Recording the VA has significance, legally and medically. Standardization of examining the VA is required. The proposed optotypes are an attempt to create standardization.

Rapid Fire Presentation #27 (RF27)

Technological advancements in treating AMD & DME

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Topic
Clinical

Abstract

Case Presentation
As the aging population & obesity levels continues to increase, demands for better treatment options are needed to tackle the burden of aging conditions such as nAMD and DME. Options are now more advanced due to technological advancements that enable us to enhance treatment outcomes and patient satisfaction.

Actions taken
Improving diagnostic modalities that can improve early detection, treatment and monitoring these two conditions. With advances in Imaging techniques and multi modal therapeutic regimes there should be a corresponding improvement in designing a treatment algorithm and multimodal therapeutic regimens.

Results
Numerous studies &trials have occurred. I will be quoting from LEAVO study, PULSAR study, YOSEMITE trials and RHINE trials. This has led to the introduction of numerous 'Treat-and-Extend' therapeutic regimens which now go from monthly injections to 12, weekly. The most promising is Aflibercept 8mg now being prescribed for intra-vitreal-injections at 12 weeks in comparison to Aflibercept 2 mg as a monthly dosing regimen.

Rapid Fire Presentation #28 (RF28)

Clarity in sight: An evaluation of current pediatric prescribing guidelines using AGREE II assessment and a modified Delphi approach

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Topic
Research/Science

Abstract

Purpose
We aimed to identify and evaluate the quality of clinical guidelines for prescribing refractive error correction in children using the Appraisal of Guidelines for Research and Evaluation II (AGREE-II) tool and gather expert opinion on appropriateness of prescribing recommendations using a modified Delphi method.

Method
We identified eligible guidelines (as defined by AGREE-II) by scoping and reviewing literature and local protocols relating to managing paediatric refractive error. We assessed quality of these guidelines by scoring them across the six domains of AGREE-II. The modified Delphi method (three rounds) was used to gain consensus on prescribing recommendations extracted from any high-quality guidelines. Ten experts (sub-specialist optometrists, ophthalmologists, orthoptists) participated. Agreement with statements was scored using a 9-point Likert scale with additional free-text options.

Results
We identified five eligible guidelines that varied significantly, with four scored as low quality, ICC 0.54-0.90, and one high quality, ICC 0.96 (Paediatric Eye Evaluations Preferred Practice Pattern® American Academy of Ophthalmology, 2017). From the latter, 168 prescribing statements were extracted for review using the modified Delphi method. Of these, 95 gained expert consensus as being appropriate, with Cronbach's α of 0.97 (Round one), 0.88 (Round 2), and 0.62 (Round 3), indicating high reliability of responses, with no difference in agreement scores between rounds for each professional group ($p>0.05$).

Conclusion
Application of the AGREE II tool demonstrated variance in quality of prescribing guidelines, highlighting areas requiring improvement. Using the modified Delphi procedure, we obtained expert consensus on 95/168 appropriate prescribing statements from a high-quality guideline, showing the need for further guideline refinement.

Rapid Fire Presentation #29 (RF29)

A comparison of objective grading of images obtained using a slit lamp digital imaging system and an advanced topographer

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Topic
Research/Science

Abstract

Purpose
This study aimed to quantify, on images obtained using a slit lamp (SL) and an advanced corneal topographer (ACT), the bulbar redness (BR) and vascularization using a software system that analyzes images using an automated objective grading scale.

Methods
For this study were included 100 eyes to acquire images of nasal bulbar area using two different instruments, a SL with digital imaging system (700GL-Digital, Takagi) and an ACT (Meridia Pro, Medmont). Using both instruments for every area considered three images were acquired and uploaded to the AOS® Anterior software designed to analyze the images of ocular anterior surface. After a manual selection of the region of interest the software automatically measured the BR using a scale ranging from 0 to 4 in 0.1unit steps and the percent vessel score (VS) indicating the percent of redness.

Results
A total number of 600 images were analyzed. The BR and the VS obtained from the images acquired with the SL were significantly less than the images acquired with the ACT ($P<0.0001$) with respectively a grade of 0.51±0.28 vs 1.81±0.36 for BR and 19.85±3.12% vs 25.82±2.72% for VS.

Conclusions
Objective analysis of images offers a highly accurate and repeatable method compared with the subjective evaluation obtained using conventional grading scales. This analysis can be considered an excellent way to evaluate overtime changes of bulbar redness induced by ocular disease, dry eye or contact lens wear. Due to this high accuracy the images acquired must be obtained always using the same instruments and conditions to avoid grading e

“EARLY CAREER PRESENTATIONS” ABSTRACTS

Early Career Rapid Fire Presentation #1 (EC1)

Review of contralateral eye research on myopia control (myopia management)

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Topic
Research/Science

Abstract

Purpose
Most myopia control trials are parallel group (between-subjects) randomised controlled trials (RCTs). Within-subjects designs - when each participant acts as their own control - are more efficient, requiring fewer participants for a given treatment effect to reach statistical significance. This is because the best-matched control for each participant must be that participant themselves. Contralateral eye research seems a particularly appropriate within-subject design for research on myopia control because the growth signals for axial elongation are believed to be localised within each eye. The purpose is to carry out a review of RCTs on contralateral eye myopia control research, to highlight advantages and limitations.

Methods
PubMed, Google Scholar, ScienceDirect, and Web of Science were searched for keyword combinations including contralateral, myopia control, randomized, paired-eye. Relevant papers were studied to fulfil the goals listed above, determine typical sample sizes, and investigate whether there is any evidence of cross-talk (contamination) between the results from each eye.

Results
The literature search revealed 46 publications, of which 5 were relevant. Sample sizes ranged from 26 to 95: an advantage of contralateral eye research is that fewer participants are required (~one sixth) than typical parallel group RCTs. There were no data in humans indicating cross-talk between the response to myopia control in each eye, although this has been found in some animal models. No major limitations were found that are attributable to contralateral eye methodology.

Conclusion
Contralateral eye methodology seems particularly well-suited to research on myopia control and appears to be an under-used approach.

Early Career Rapid Fire Presentation #2 (EC2)

Efficacy of defocus incorporated multiple segment spectacle lenses in a young Czech population

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Topic
Research/Science

Abstract

Purpose
To evaluate the efficacy of Defocus Incorporated Multiple Segment (DIMS) spectacles in slowing myopia progression in a young European population of progressing myopes.

Methods
A prospective, non-randomized, observational study was carried out on 84 progressing myopes aged 6-26 years, with myopia between -0.25D and -8.50D and astigmatism -0.25DC and -2.25DC (SER range -0.50D and -9.75D). Participants self-selected wearing DIMS (n=58) or single vision (SV) spectacle lenses (n=26). Spherical Equivalent Refraction (SER, cycloplegic autorefraction) and axial length (AL) were measured at baseline. AL was measured at 3M, 6M and then every 6M and SER measured every 12M.

Results
AL baseline measurement for right eye (RE) was 24.37mm and for the left eye (LE) was 24.37mm in SV group. Maximum AL reduction for SV group for the RE was -0.07mm and -0,08mm for the LE. The AL changes from baseline were not significant for the SV group ($p>0.05$). AL baseline measurement for the RE was 24.88mm and for the left eye LE was 24.85mm in DIMS group. The maximum AL reduction for DIMS group for the RE was -0.09mm and -0.17mm for the LE. The AL changes from baseline were statistically significant for DIMS group ($p=0.0001$).

Conclusions
Daily wear of the DIMS spectacle lens significantly retarded myopia axial elongation. Additional data analysis is underway.

Early Career Rapid Fire Presentation #3 (EC3)

Exploring cultural competence in ophthalmic dispensing education in South Africa: A qualitative study

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Topic
Educational

Abstract

Purpose
Cultural diversity in eyecare settings requires all eyecare professionals to be able to provide culturally competent eyecare. Cultural competence refers to a set of beliefs, attitudes, knowledge and skills that can be adapted to manage cultural differences. Universities play a crucial role in the development of ophthalmic professionals who strive towards cultural competence (CC). This study explored ophthalmic dispensing lecturers' perceptions, attitudes and preparedness to teach CC in the curriculum.

Methods
This pilot study was conducted at a university in South Africa. A descriptive qualitative approach was followed where semi-structured individual interviews were conducted with ophthalmic dispensing lecturers (n = 7). Thematic analysis was applied to explore their perceptions.

Results
The thematic analysis revealed three themes, the first theme being the interplay between experiences and understandings of cultural competence, which concerns the relationship between the participants' cultural background and its influence on understanding diversity. The second theme is cross-cultural exposure and teaching practices, which considers relevant teaching practices such as immersion experiences, case discussions, and diverse group work. The last theme is the inclusion of cultural competence in the curriculum, which considers the enablers and barriers to the inclusion of culture in eyecare education.

Conclusion
It was clear that there were no clear guidelines on including cultural competence in the curriculum. Further, training of lecturers on the concept of CC and evidence-based teaching strategies is required to assist in developing culturally competent curricula. Support from optometric professional bodies is needed to ensure the inclusion of cultural issues in eyecare education and produce graduates who continuously strive towards cultural competence.

POSTER PRESENTATIONS ABSTRACTS

Poster Presentation #1 (PP1)

Kite Test: A new test to examine the different components in subjective monocular refraction

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Topic
Clinical

Abstract

Significance
The subjective monocular refraction is the basis for determining the prescription. A single testing target for determining the final prescription, by simultaneous viewing, with a method to control testing error, simplifies the procedure.

Purpose
A test chart, and method of examination, to improve the efficiency of determining the correction of the astigmatic and spherical component of a prescription. The testing procedure utilizes immediate comparison, avoiding sequential testing by memory. A method of avoiding errors, caused by viewing away from the optical centre, is included.

Method
A single, non-movable test chart, independent of the circle of least confusion, is presented. The target is based on the simultaneous resolution of a line in four meridians.

Result
The testing method, used in the clinic, has proved efficient and easily understood. A limited independent trial shows that the method is as effective as traditional methods and produced acceptable results when used by ancillary staff.

Conclusion
The method improves the examination of the subjective refraction without the need to change targets. There is no need to consider the circle of least confusion. The target includes tests for axis, cylinder power, spherical power. The use of a simultaneous comparison is better received by patients than the sequential test, and is easily understood. The spherical end-point is definite, unless there is hyper-acuity or accommodative spasm. The test improves the ability of the patient to understand, and be comfortable with, the testing method.

Poster Presentation #2 (PP2)

Subjective wearing experience of a novel spectacle lens for myopia management based on peripheral asymmetric myopic defocus.

Authors

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Topic

Research/Science

Abstract

Purpose

To determine the subjective wearing experience of a novel spectacle lens designed to slow myopia progression based on peripheral asymmetric myopic defocus.

Methods

Double-blind randomized clinical trial comparing the subjective wearing experience with a novel lens spectacle (MyoZen, IOT, Spain) and a control single-vision lens. Participants were randomized to receive treatment (n=41) or control (n=42) spectacle lenses and were asked to use them full-time for 6 months. Subjective wearing experience was assessed using a survey with scale from 1 to 10 that evaluates perceptions for different vision distances, activities and symptoms. Unpaired t-test was applied to compare wearing experience after 6 months of use between lenses. Statistical analysis was performed using Statgraphics Centurion XVI.II software.

Results

Children reported high mean satisfaction rates for all questions for both lenses. Rates for comfort were 8.5±1.6 for control and 9.2±1.1 for treatment lens. Sharpness rates were 9.1±1.3 and 9.1±1.3 for control and treatment lens respectively. Vision for sports was 8.5±1.3 for control and 8.8±1.5 for treatment lens. Subjective wearing experience were not statistically significant different between both lens group ($p>0.05$).

Conclusions

The new lens with peripheral asymmetric myopic defocus provides wearing experience and comfort similar to those of a standard single-vision lens.

Poster Presentation #3 (PP3)

Satisfaction with blue light blocking lenses among population in Latvia

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Topic
Research / Science

Abstract

Today, blue-light filtering lenses are frequently recommended for protecting the eyes from short wavelength light, reducing eyestrain associated with computer work, improving sleep quality, among other purposes. However, there is still no high-quality randomized research that could confirm these assumptions. The objective of this study was to assess the opinions of Latvian optical consumers and optometrists about blue-light filtering lenses and to discover their experiences with these lenses.

Method
A questionnaire evaluating experience and satisfaction with blue light blocking spectacle lenses was administered to two groups: 400 participants not affiliated with the field of optometry (Group 1), with an average age of 25 ± 8.4 (SD) years, and 66 optometrists (Group 2), with an average age of 37.6 ± 9.7 years. Both groups had similar questionnaires which consisted of 12 multiple and open responses questions related to blue-light filtering spectacle lenses.

Results
One question specifically inquired whether participants believed that blue light blocking lenses could have a positive impact on human health. A significantly larger proportion (p < 0.05; Z- score test)) of participants in both groups—77% from Group 1 and 69% from Group 2—responded affirmatively. Additionally, within both groups, a significantly larger percentage (81% and 65%, respectively) of those who had used these lenses reported experiencing improvements in vision comfort.

Conclusions
The findings of this study indicate that a significant majority of both optical consumers and optometrists are satisfied with the performance and benefits of blue-light filtering lenses.

Key words: blue-light filtering lenses, quality of vision, ocular health

Poster Presentation #4 (PP4)

Factors impacting burnout in optometry

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Topic
Educational

Abstract

Topic
In the latest International Classification of Diseases, ICD-11, “Burnout” has been classified as a true syndrome. The World Health Organization recognizes burnout as chronic workplace stress that has not been appropriately managed, associated with exhaustion, cynicism and reduced professional efficacy.

Content
Burnout is more prevalent in healthcare, impacting providers through mental and physical health problems, and their patients who receive poorer care. The prevalence of burnout among physicians is twice that of other professions, from performance at a high cognitive level with heavy workloads and serious consequence of error. With increasing scope of practice, optometrists have similar risks.

Results
The largest study of optometrists, in Australia, found burnout in 56.1% of participants as indicated by exhaustion, 57.1% by cynicism and 23.1% by professional efficacy, numbers comparable to medical physicians. Highest risks of burnout are related to workload, autonomy, and supervisor support, but there are myriad contributing issues. Younger individuals are more likely to suffer burnout than older persons who develop resilience. Female gender has higher risk, important to optometry as the profession trends toward more women. Scope of practice may have a role but has not yet been studied in optometry.

Recommendations
Burnout is an officially recognized syndrome not studied extensively in optometry, though there are unique issues. Because of varied practice of optometry across the globe, each nation should evaluate its practitioners then share results for comparison. Scope of practice and gender should be explored in detail because these involve two of the most permeating trends of the profession. Ultimately, the profession should be aware of risks in an effort toward prevention.

Poster Presentation #5 (PP5)

Intermittent exotropia: The effect of alternating occlusion therapy on control of strabismus

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Topic
Research / Science

Abstract

Background
Intermittent exotropia is a common form of pediatric strabismus characterized by intermittent misalignment of the eyes. This study investigates the clinical effectiveness of alternating occlusion therapy as a non-surgical alternative for children aged 3-10 with intermittent exotropia.

Methods
A comprehensive review of recent research, including randomized controlled trials and case series, was conducted. These studies utilized standardized control scores to assess the impact of alternating occlusion therapy on both distance and near control of alignment.

Results
The findings indicate a significant improvement in exotropia control, particularly in distance vision, among children undergoing alternating occlusion therapy. While some variability in outcomes exists, the majority of cases demonstrate positive responses to this non-invasive approach. Notably, patients with poorer initial control tend to benefit most.

Discussion
Potential advantages of alternating occlusion therapy are its cost-effectiveness and non-invasive nature. However, it is essential to manage patient and family expectations and address potential drawbacks, including social stress, irritation associated with occlusion therapy and the possibility that a strabismus operation can still be needed in the future because of decompensation.

Conclusion
Alternating occlusion therapy emerges as a promising option for enhancing exotropia control in children with intermittent exotropia. It offers a viable non-surgical strategy to delay or potentially avoid strabismus surgery, though long-term outcomes may vary. Healthcare providers should engage in informed discussions with patients and their families to weigh the benefits and limitations of this intervention carefully. This offers valuable insights to the clinical management of intermittent exotropia, providing an evidence-based alternative to surgical intervention.

Poster Presentation #6 (PP6)

Prism prescribed using stereotest results out-performs Sheard's criterion.

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Topic
Research / Science

Abstract

Introduction
Prism prescribing for decompensating exophoria by Fusional Reserves (FR) with Sheard's Criterion (SC) or by Fixation Disparity (FD) is limited by the variable levels of successful outcomes. Neither method considers stereopsis in their investigation, despite the fact that the majority of decompensating exophorias have reduced stereopsis, especially global stereopsis (Momeni-Moghadam et al. 2011; Vancleef et al. 2017).
This pilot study compared a new global-stereo-based approach to prism prescribing to Sheard's criterion in decompensating near exophoria.

Methods
Symptomatic exophores (n = 79) were recruited from a binocular vision clinic. In a randomized double-blinded crossover study, two values of prismatic correction (SC and GS based methods) were calculated and prescribed. The GS method was based upon identifying the minimum prism required to maximize stereopsis.

Results
There was a statistically significant difference between the prism values for GS and SC (13 and 7.3 respectively, one-way ANOVA $p<0.05$). The participants wore each value of prism for 1.5 months. A CISS questionnaire was filled in at baseline and after each period of prismatic correction. There was a statistically significant reduction in symptoms (questionnaires scores), more so for GS than for SC (44 at baseline, 29.5 for SC and 21.8 for GS, one-way ANOVA $p<0.01$).

Conclusion
The novel GS method for prescribing has given a greater value of prescribed prism for exophoria than SC did and, crucially, this larger value has delivered a greater level of symptom relief. We conclude that incorporating stereo performance as an input measure to prism prescribing can give a better clinical outcome for decompensating near exophoria. Further work is under way to refine this method.

Poster Presentation #7 (PP7)

The effect of heterophoria on the size of fusion vergences in far and near

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Topic
Clinical

Abstract

Purpose
We demonstrate changes in near and far fusional vergence measured with prism bars while compensating for the heterophoria present using current ametropia correction. Furthermore, determine the differences in the values of the AC/A ratio determined by the heterophoric (calculation) and gradient method.

Methods
The basic sample includes 19 subjects with a mean age of 21.5 ±3.0 years (min. 18, max. 27). We used Von Graefe technique for examination of distance and near phoria and prism bars for examination of fusion vergences. We divided the basic set into six research sets according to the size of heterophoria in the distance and near. It was a set of patients with orthophoria to distance (D OR) and to near (B OR), a set of patients with exophoria to distance (D EX) and to near (B EX) and a set of patients with esophoria to distance (D ES) and to near (B ES).

Results
In the case of both groups with exophoria (far, near) we found a statistically significant result only for negative fusion vergence (NFV). There was a statistically significant increase in NFV in sample with far and near exophoria (D EX, $p = 0.01$ and B EX, $p = 0.02$, respectively). In our study, we also demonstrated a statistically significant difference ($p < 0.001$) in the values of the AC/A ratio measured by the gradient and heterophoric methods. The values determined by the gradient method are lower (3.0 ±1.1 pD/D versus 5.8 ±0.9 pD/D) than by the heterophoric method.

Conclusion
By comparing the fusion vergence values in patients with exophoria and orthophoria, we demonstrated that in the presence of far or near exophoria, there is an increase in the ipsilateral fusion vergence. In the case of a reduction in ipsilateral fusion vergence, the finding was statistically significant both far and near ($p = 0.01$ and $p = 0.02$, respectively). On the contrary, we were unable to prove this fact in the group of patients with esophoria. In our study, we also demonstrated a statistically significant difference ($p < 0.001$) in the values of the AC/A ratio measured by the gradient and heterophoric methods. The values determined by the gradient method are lower (3.0 ±1.1 pD/D versus 5.8 ±0.9 pD/D) than by the heterophoric method.

Poster Presentation #8 (PP8)

The impact of running with and without a guide on short distance running performance for athletes with a vision impairment.

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Topic
Research Science

Abstract

Purpose
This study aimed to investigate the impact of running with or without a guide on short distance running performance for athletes with a vision impairment (VI).

Method
Data including athletes' (n=240, 146 male) and guides' (n= 85, 83 male) sex, age and race times were extracted from 11 elite competitions. Differences in race times, when athletes competed with or without a guide, as well as a separate sub- analysis of athletes who have competed both with and without a guide, were analysed using Mann-Whitney U tests and t-tests.

Results
Male athletes predominantly ran without a guide (100 m = 91%, 200 m = 89%, 400 m = 85%), whereas female athletes mainly ran with a guide (100 m = 60%, 200 m = 80%, 400 m = 72%). No significant difference in 100 m race times was found between male athletes who ran with a guide or without a guide ($p = 0.647$). For 200 m ($p = 0.001$) and 400 m ($p = 0.030$), race times were significantly slower for male athletes running with versus without a guide. Conversely, 100 m ($p = 0.015$), 200 m ($p = 0.025$) and 400m ($p=0.029$) race times were significantly faster for female athletes, who ran with versus without a guide.

Conclusion
Running with a guide affects VI athletes' race times. The influence of running with a guide and the gender mix of VI athlete and guide should be considered in any research with the aim of establishing a new classification system for VI athletes.

Poster Presentation #9 (PP9)

Optometric diagnosis of monkeypox through technology and shared care

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Topic

Clinical

Abstract

Clinical topic

Monkeypox is a reemerging disease caused by a virus belonging to the Orthopox genus. Traditionally, it has been recognized as an endemic zoonosis in West and Central Africa. In May 2022, the virus migrated from Africa to Europe. Its spread is facilitated by close contact with infectious cutaneous lesions. Here, we present the case of an immunocompromised individual who the attended the optometry service.

Case

A 28-year-old male patient from Colombia, HIV+ infection since 2018, under antiretroviral therapy. In July 2022, he developed disseminated tuberculosis and histoplasmosis. In October 2022 he was evaluated by optometrist and papules were found in the eyelids, perianal region, inguinal lymphadenopathy and multiple similar lesions on the nose, mouth, trunk, upper and lower extremities. Monkeypox confirmation was requested using PCR for Orthopoxvirus DNA, showing positive results for the West African MPX strain. One week later after first optometry appointment he revealed bilateral follicular conjunctivitis and mucous discharge without keratitis, his visual acuity was 20/20 OU. Treatment included 0.4% Sodium Hyaluronate, 0.5% Loteprednol, and a short course of topical 1.5% azithromycin. Colombian optometrists are legally authorized to prescribe eye medications. Hospitalization and shared care with systemic Acyclovir and topical Ganciclovir was indicated for 14 days. Palpebral lesions resolved four weeks after the onset of ocular symptoms.

Conclusion

The resurgence of Monkeypox and its ophthalmic involvement poses a challenge for timely diagnosis and clinical management for optometrists in the early stages due to the presence of similar lesions like those caused by other Poxvirus infections.

Poster Presentation #10 (PP10)

Evaluation of patient satisfaction after optometrist eye examination in Latvia

Authors

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Topic

Clinical

Abstract

Introduction

Patient satisfaction with the quality of optometrist vision testing remains an area of limited investigation but holds significant utility in enhancing our comprehension of customer service, optometric expertise, and communication proficiency. It would be reasonable to anticipate that optometrists perform uniformly, without variations in patient satisfaction based on the store's location (whether it is a supermarket or a street store) or the duration of the visit (30 minutes or 20 minutes). However, it is imperative to discern patterns to gain deeper insights into the Latvian market and the post-vision test experiences of patients within optometrist examination. Consequently, the primary objective of this study was to scrutinize patient satisfaction in Latvia following their consultation with an optometrist.

Methodology

A total of 473 participants, with an average age of 39 years, and a standard deviation of 10 years, engaged in this study by visiting 49 different optical stores across Latvia (comprising 19 street stores and 30 super-market located). Of these, 15 stores optometrists' examination was 20-minute, while the remaining 34 stores allotted 30 minutes. Subsequent to their consultation with the optometrist, participants were required to complete a questionnaire consisting of ten inquiries. Questionnaire contained 10 questions. This questionnaire encompassed queries relating to the visit's duration, the level of fatigue experienced, the quality of communication, and the resolution of their objectives. Respondents rated their responses on a scale ranging from 0 (indicating very poor) to 10 (indicating excellent). Data analysis was executed utilizing the Student's t-test. It is important to highlight that all respondents provided written consent for the utilization of their questionnaire responses in this research.

Results

The responses gathered through the questionnaires revealed that there were no statistically significant disparities in patient satisfaction stemming from the location of the vision test, whether it occurred in a street shop or a supermarket. Furthermore, no statistically significant distinctions were detected in patient satisfaction when the vision test's duration was shorter. Of the patients, 49% made appointments directly at the optometrist's office, while 21% utilized the website for this purpose. In response to the query, "Did the optometrist collect comprehensive information regarding your ocular health, eyeglasses, general health, and concerns before commencing the tests?" participants consistently indicated that the optometrist exhibited a meticulous approach to data collection, garnering an average rating of 9.6 +/- 0.6 points. Likewise, when queried about whether the optometrist conducted a sufficient number of tests to address their specific concerns

and requirements, an impressive 95% of the responses accorded the highest rating of 10, signifying complete alignment with the statement and an average rating of 9.7 +/- 0.5 points. Finally, in response to the question “How would you generally appraise the optometrist’s performance and interactions?” a remarkable 98% of the respondents conferred the maximum rating of “excellent,” with an average rating of 9.8 +/- 0.2 points.

Conclusions

The findings unequivocally affirm that patients in Latvia express a high degree of contentment with the quality of ocular examinations. Responses from participants suggest that optometrists in Latvia consistently deliver high-quality vision tests, adeptly addressing the optical correction requirements and adhering to the desired duration of the vision test, as specified by the patients. Importantly, patients do not discern discernible differences when undergoing an eye examination in either a high street or a supermarket optometry establishment.

Poster Presentation #11 (PP11)

Comparison of biometric measurement on devices based on the principle of swept source OCT

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Topic
Clinical

Abstract

Introduction
This work compares the biometric measurement of four biometric devices that work on the principle of swept source OCT, IOL Master 700 (Carl Zeiss Meditec), Argos (Movu Inc.), Anterion (Heidelberg Engineering) and Eyestar 900 (Haag- Streit AG). The goal is to assess the compatibility of pairs of devices, determine the most accurate device and compare groups of patients with cataracts and with clear lenses.

Methodology
A prospective study was conducted at the Refractive Center of the Department of Eye Diseases and Optometry at the University Hospital at St. Anna in Brno. 56 left eyes of 56 patients were included in the study. The patients were divided into group 1, in which the cataract was indicated for surgery, and group 2, where the patients had a clear lens. To find out which device is the most accurate, the calculation of the standard deviation was used.

Results
When comparing groups 1 and 2, no statistically significant difference was found in the variables axial length and average keratometry, on the contrary, in the variables anterior chamber depth and lens thickness, groups 1 and 2 differed statistically significantly for all devices, significance level $p<0.05$. The most accurate device in our study was the Argos biometric device, in group 1 it had the smallest standard deviation in 2 out of 4 monitored variables, in group 2 even in 3 out of 4 monitored variables.

Conclusion
We demonstrated excellent agreement in the measured biometric variables axial length and mean keratometry between the IOL Master 700, Argos, Anterion and Eyestar. Although some pairs of devices showed a statistically significant difference, this difference is not clinically significant. When comparing groups 1 and 2, it was found that the presence of cataracts does not affect the accuracy of measuring axial length and average keratometry. The most accurate device in our study based on standard deviation comparison was the Argos.

Poster Presentation #12 (PP12)

Visual strain in uncorrected presbyopes

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Topic
Research / Science

Abstract

Purpose
Presbyopia, defined as a gradual and physiological decline in the ability of the lens to accommodate near objects due to the aging process, is entering the stage of research related to refraction of the eye. This research project is advance the understanding of the influence of eye refraction on the development of presbyopia. It
focuses on testing three key hypotheses:

1. the interaction between hypermetropia and presbyopia.
2. the relationship between the degree of myopia and the course of presbyopia
3. that regular correction of hypermetropia positively affects the course of presbyopia

Method

1. Sampling: select a sample of participants and divide them into groups according to the degree of refractive error
2. Measurement of refraction and presbyopic symptoms
3. Comparison with other refractive errors
4. analysis of data

Conclusion
The project, which stems from the search for a link between refraction of the eye and presbyopia, promises not only advances in optometry and ophthalmology, but also the opportunity to transform our understanding of ocular ageing. I believe that the results of this study may provide not only a deeper understanding of the physiological mechanisms associated with presbyopia, but also a shift in our common understanding of eye care, which will benefit individuals suffering from this phenomenon and the professional medical community. This research may help to build new standards for the diagnosis, prevention and treatment of presbyopia, giving hope for improved quality of life for individuals in a position where ageing eyes interfere with daily activities.

Poster Presentation #13 (PP13)

Myopia management with MiYOSMART lenses: case study-based development project

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Topic
Clinical

Abstract

Purpose
This study aims to evaluate the suitability of MiYOSMART lenses for managing progressed myopia/

Methods
This clinical case study describes assessing and managing a single patient with MiOYSMART lenses at a private optical-owned clinic from August 2021 to the end of December 2022. A literature review was prepared as background information for the case study discussion. One hundred twenty-nine (n=129) articles were retrieved, and ninety- nine (n = 99) were deemed eligible for full-text review. Seven (n = 32) studies were included in the literature review.

Results
MiYOSMART lenses can provide good myopia management for patients with high myopia. The case study patient was diagnosed with high myopia, and the patient was followed for one year. The amount of myopia and axial length didn´t progress during the follow-up.

Conclusion
Myopia can progress quickly and is associated with many eye diseases. It is important to find ways to manage myopia using evidence-based options. Optometrists have a wide knowledge of vision-related problems, and with good management possibilities, optometrists can offer extensive and good management for myopia. Broader education of optometrists allows professionals to perform high-quality examinations for myopic patients. Highly trained optometrists can also detect myopic defects affecting eye health. This case study proves the MiYOSMART lenses were a good option for managing this patient. The patient brochure is a good tool for patient guidance and follow-up visits. A broad range of evidence-based literature supported these findings.

Poster Presentation #14 (PP14)

Effect on accommodative and binocular function of a novel spectacle lens designed to slow myopia progression based on peripheral asymmetric myopic defocus

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Topic

Research / Science

Abstract

Purpose

To determine how novel spectacle lenses for myopia management with peripheral asymmetric myopic defocus affect accommodative and binocular functions over time.

Methods

Double-blind randomized clinical trial comparing the accommodative and binocular functions with a novel lens (MyoZen, IOT, Spain) and a control single-vision lens. Participants were randomized to receive treatment (n=41) or control (n=41) spectacle lenses and were asked to use them full-time for 12 months. Variations in the near (NP) and distance phorias (DP), accommodative amplitude (AA), and accommodative lag (Alag) were assessed. Paired t-test with Bonferroni correction was applied to compare accommodative and binocular functions before and after wearing the lenses for 12 months. Statistical analysis was performed using Statgraphics Centurion XVI.II software.

Results

For both the myopia control lens and the standard SV lens, we have not found any statistically significant difference for any of distance and near phorias, accommodative amplitude, or accommodative lag. Before the test, values for the children wearing the treatment lens were AA(RE)=11.24±2.78D, Alag (RE)=0.39±0.34, NP=-2.17±4.10 and DP=-1.02±2.98. After 12 months of treatment, values were similar: AA(RE)=10.72±2.87, Alag=0.50±0.29, NP=0.47±5.52 and DP=-1.26±3.12.

Conclusions

Accommodative and binocular functions are maintained stable in myopic children after 12 months of wearing the tested lens for myopia management lens based on peripheral asymmetric myopic defocus.

Poster Presentation #15 (PP15)

Can changes in refraction and axial length in the first 6-months of MiYOSMART wear predict future progression in UK children?

Authors

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Topic

Research

Abstract

Purpose

MiYOSMART spectacles lenses are well tolerated and retard myopia in Chinese children compared to single-vision spectacle lenses. Data presented are from a 3-year observational trial of MiYOSMART wear among UK children. We explore whether short-term changes in refractive error and axial length are predictive over a longer-term.

Methods

Recruits aged 5-15 years (cycloplegic spherical equivalent refraction [SER] -0.50 to -8.50D) were prescribed MiYOSMART spectacle lenses full-time. SER (cycloplegic autorefraction) and axial length (AL) were measured at baseline and after 6- and 18-months. Changes in AL and SER over the first 6-months were compared with respective changes occurring over the subsequent 1-year using partial correlation, controlling for age, SER and AL at baseline.

Results

Participants were 101 children (54% female), mean±SD age 10.1 ±2.2 years (66% White, 17% Indian Asian, 7% Chinese, 5% Other Asian, 5% Other). Mean changes in SER and AL within the first 6-months and subsequent 12-months were -0.23±0.27D, -0.24±0.39D, 0.08±0.12mm and 0.15±0.14mm respectively. There was a statistically significant positive partial correlation between change in AL over the 1st 6-months and the change in AL for the subsequent 12-month period (r2=0.25, p=0.012). This correlation was not present for change in SER (r2=-0.14, p=0.18).

Conclusions

Change in AL within the first 6-months of MiYOSMART wear was significantly predictive of future axial elongation; faster progression in AL within the first 6-months is likely to result in fast progression in the subsequent 12-months with MiYOSMART wear. In this cohort, progression in SER in the first 6-months was a poorer predictor of future myopia progression.

Poster Presentation #16 (PP16)

Voluntary interruption of myopia control treatment: Case report

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Topic
Clinical

Abstract

Clinical topic
Controlling myopia progression is currently part of the best clinical practices in pediatric optometry. There are different treatments, with different levels of invasiveness and with different risks of failure to comply and adhere to treatment. The objective of this communication is to report the clinical, refractive and biometric observations of both eyes of a myopic girl with intermittent use of myopia control contact lenses between 8 and 15 years of age.

Case presentation
For 77 months, refractive and biometric parameters of both eyes of a female child between 8 and 15 years of age were recorded in different follow-up visits. Subjective refraction, optical coherence biometry, and keratometry data were obtained. During the period under analysis, the child used daily dual-focus hydrophilic disposable lenses to control myopia during the first 35 months, having abandoned their use during the remaining months of follow-up.

Actions taken
During this period, the spherical refractive error changed between -0.75 and -3.50 and -4.50D in the right and left eyes, respectively. During this period, the corneal curvature remained stable, while the axial length experienced an accumulated growth of 1.15 and 1.27 mm in OD and LE, respectively. The period is clearly divided into 4 phases, clearly related to the values of average annualized growth between each visit. In the first phase, with infrequent use, with difficulties in adapting to handling, which may have delayed the objective manifestation of slowdown. In a second phase after the first 4 months, a clear slowdown was observed during the first 35 months of use, returning to initial levels after voluntary discontinuation. After this period, the user and her family decided to discontinue use, immediately showing an acceleration in average annualized growth to the progression values prior to treatment. On a last visit, a new slowdown was observed even without having used any treatment, which could be related to the normal slowdown in the axial growth of the eye in early-onset myopia.

Conclusions
This case exemplifies the consequences of poor compliance or interruption of treatment with myopia control methods, emphasizing the need for frequent monitoring, using objective assessment metrics.

Poster Presentation #17 (PP17)

The impact of government healthcare institutions on optometric legislation

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Topic
Educational

Abstract

Topic
The scope of the profession of optometry has advanced considerably in recent decades. In the United States, much of this is a result of the experience of optometrists in government roles using pharmaceutical agents in the performance of patient care before that was permitted elsewhere. These optometrists were pivotal in the legislative expansion of the profession.

Content
Forces of political medicine, particularly ophthalmology, fought hard to prevent optometrists from gaining professional status. When eventually commissioned, optometrists easily overcame claims that they could not safely and effectively use diagnostic and therapeutic pharmaceutical agents. Optometrists also worked alongside other health care providers demonstrating a high level of education and professionalism, gaining respect from other health professionals.

Results
Within some United States governmental agencies, optometrists were using pharmaceutical agents in practice by the mid-1950s. The first diagnostic pharmaceutical law was enacted in 1971 followed by the first therapeutic law in 1976. All states authorized diagnostics by 1989 and therapeutics by 1998. Currently, ten states have also authorized optometrists to perform minor surgical and laser procedures. The experience of government optometrists was pivotal in this process.

Recommendations
Prior to obtaining pharmaceutical privileges, U.S. optometrists were authorized only to detect ocular disease. As education and post-graduate training expanded, followed by passage of diagnostic and therapeutic pharmaceutical legislation, optometrists gained the responsibility to diagnose, and later treat and manage, conditions of the eye and adnexa. This model may be helpful to other countries where optometry plans to increase the scope of practice.

Poster Presentation #18 (PP18)

Precise empirical cornea - limbals (NewVision) ortho-K contact lens fitting design utilizing advanced topographers Medmont Meridia and ESP Profilometry.

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Topic
Clinical

Abstract

Over the last decade, Ortho-k lenses have significantly progressed in design based on better knowledge of the cornea shape. One of these new developments is the ability to better design empirical Ortho-k contact lenses, reducing the chair time and the number of refits. Previous studies showed that many remakes were often necessary.

Case presentation
A 14.5-year-old female with a previous history of spectacles glasses for myopia was referred by an ophthalmologist for specialty Ortho-k and Myopia management contact lenses. Refraction was OD-5.00-0.75*2 axial length OD was 25.35mm. Refraction OS was -1.00-0.50*10 and axial length was 23.79mm. This Caucasian patient had never used any contact lenses and had small palpebral fissures like the Asian population.

Actions taken
The Medmont Meridia topographer was used to design the custom (NewVision by Acculens, USA) Ortho-K lenses for Myopia Management. The material was Optimum Infinite in diameters OU 12.10mm, sag on OD 270nm and OS 273nm, with toric peripheral curves. The final modifications 2 months later were -0.50D to OD and OS, and with a reduction of 15nm in SAG.

Conclusions
Empirical Ortho-k contact lens fitting based on corneal topography data seem to have several advantages. Reduced chair time and less fatigue of practitioner and patient are two of them. The patient was very satisfied with the speed and the efficiency of the fit and the final result.

Poster Presentation #19 (PP19)

Changes in the visual field of patients with keratoconus

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Topic
Research / Science

Abstract

Purpose
The aim of this study was to measure the effect of keratoconus on the visual field. Keratoconus is a hereditary degenerative cornea disease, which consists of a progressive thinning of the cornea. Perimetry is a basic examination method of the visual field. It allows us to measure the function of visual field and detect loss of peripheral vision.

Method
Volunteers suffering from keratoconus were examined on the Oculus Centerfield perimeter, which is a static threshold perimeter. The collected data consisted of their age, sex, severity of their keratoconus on the Amsler scale, visual acuity (with and without correction) and the mean sensitivity and mean defect. These results were compared with a control group.

Results
The results show that there is no significant damage to the visual field of the volunteers. The average mean sensitivity was 20,81 db and the mean defect 1,42 db. The hypothesis that patients suffering from keratoconus of Amsler stage 2 or higher will have worse results in the measurement of their visual field has not been proved.

Conclusion
Perimetry is not a typical examination method for patients with keratoconus. However, there may be a certain correlation between visual field damage and corneal parameters. The results of this study can give us more information about the vision of people with keratoconus, not just their visual acuity but their actual peripheral vision and sensitivity.

Poster Presentation #20 (PP20)

Does experience count? Using electronic referral systems to guide training needs amongst optometrists.

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Topic
Research

Abstract

Purpose
Accurate referral from primary to secondary care is crucial for timely patient management. The implementation of an Electronic Referral System (ERS) in 2021 streamlined communication between community optometrists and the hospital. This study analysed case outcomes using ERS data, comparing submissions from experienced referrers with referrers that are more recently qualified.

Methods
Referral and advice-only cases arriving on the ERS platform over a 28-week period from February 1 2023 were analysed. Registration year of each referring optometrist was obtained from the General Optical Council (GOC) website. Optometrists were categorised as experienced (registered on or before median year) or qualified (registered after median year) with a subgroup identified as newly qualified (registered within the prior 3 years). Statistical significance was found by a Pearson chi-squared test.

Results
1378 cases were received during the study period from a total of 81 optometrists. 27.9% were advice requests and 72.1% (983/1378) referrals. Of the 983 referrals, 79.7% were accepted, 15.4% rejected and 5.0% redirected. Rejection reasons included additional information (39.7%) and lack of hospital monitoring need (27.2%). Median year of GOC registration was 2006 (Range: 1976–2023). There was no statistically significant difference in the case outcomes between experienced, qualified, and newly qualified staff (p=0.834) although there were some observed differences between reasons for rejection.

Conclusion
While some differences emerged between optometrist referrer groups, there were no statistically significant variations in outcomes. Further analysis of outcome data at referrer-level could be used to develop tailored training.

Poster Presentation #21 (PP21)

The effect of face masks on intraocular pressure during physical activity in healthy subjects

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Topic
Research

Abstract

Background
Surgical masks or respirators are considered an integral part of respiratory protection which over time result in side effects involving many physiological processes. As a consequence of this phenomenon, intraocular pressure can also be affected, while its changes have already been observed in patients with glaucoma. The aim of the study is to determine whether respiratory protection, worn during low aerobic exercise, has a side effect on intraocular pressure value in healthy subjects.

Patients and Methods
Intraocular pressure was measured by Icare IC200 before and during brisk 500 m walking realized in three phases without face protection, with a surgical mask and with a respirator FFP2. Each phase was preceded by ten minutes of rest in a relaxed sitting position without any respiratory protection. 18 healthy subjects (31 eyes, age range 30-75, average age 45 ± 15 years) were enrolled in the study and participated in all the phases in random order.

Results
Intraocular pressure increased statistically significantly (P = 0.0003) during the activity and then subsequently returned to the baseline for all the conditions tested, i.e. without as well as with respiratory protection. The medians of significant IOP changes were in a range from 0.8 mmHg to 1.8 mmHg across all phases, the biggest one was between the mid-track compared to the end of the phase with the respirator FFP2. All these changes were clinically insignificant. The effect of the used types of respiratory protection was not proved.

Conclusion
Respiratory protection wear in normal daily routine represented by short-time low-level aerobic activity does not cause changes in intraocular pressure in subjects without glaucoma diseases. This conclusion cannot be generalized, however, to high-load or anaerobic activities. We also recommended using respiratory protection only from a proven manufacturer that demonstrably met all the relevant requirements, namely in the case of FFP2 respirators.

Poster Presentation #22 (PP22)

Computer Vision Syndrome among KNUST students and office workers at Adum, Kumasi

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Topic
Research /Science

Abstract

Purpose
This study investigates the prevalence of Computer Vision Syndrome (CVS) among students at the Kwame Nkrumah University of Science and Technology (KNUST) and office workers at the Kumasi Metropolitan Assembly (KMA) office in Adum, Kumasi. The research aims to identify associated factors and evaluate preventative and control techniques for CVS.

Methods
A cross-sectional survey was conducted among 200 Visual Display Terminal (VDT) users, employing a standardized Computer Vision Syndrome Questionnaire (CVS-Q). Data analysis was performed using IBM SPSS Statistics compatible with Windows 11.

Results
The study included 46.5% male and 53.5% female participants, with 79% being students and 21% office workers. The overall prevalence of CVS was 56.0%, with a higher rate among KNUST students (57%) compared to office workers (52.4%). Bivariate and multivariate analyses revealed refractive errors, screen viewing distance, glare presence, breaks during VDT usage, and lighting conditions as significant determinants of CVS (p-values < 0.005).

Conclusion
This study highlights a substantial CVS prevalence of 56% among KMA and KNUST students and workers. Protective measures such as taking regular breaks and maintaining adequate lighting were identified, while dark computer usage was associated with increased CVS. Importantly, 64.5% of participants lacked awareness about CVS, emphasizing the need for public education initiatives and office ergonomics compliance. Implementing awareness campaigns and promoting ergonomic practices are essential steps in reducing CVS prevalence among VDT users in Kumasi, Ghana.

WORKSHOPS ABSTRACTS

WORKSHOP # 1 (WS1)

Investigating the effect of facial and head structure on binocular balance and cortical integration

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Topic
Clinical/Educational

Abstract

Purpose/Background
To investigate how the structure of the skull and face, and attachment muscles of the head, affect the binocular vision and cortical integration of the visual system.
A vision examination should consider the structure and positioning of the orbital platform in which the eyes are located.

Malformation and asymmetry of this platform will affect the binocular function, especially during tracking and pursuit movements.
The workshop will investigate these asymmetric structures, and describe examination techniques and treatment methods to alleviate the clinical repercussions.

Method
Participants will examine and analyze these phenomena. This includes examining the face and skull structure, and the effect of posture on the visual system.
Techniques for examining the binocular muscle balance and cortical integration of the binocular vision will be presented. Treatment routines will be presented. Participants will be able to experiment using these techniques.

The workshop includes an introductory explanation, examination of the participants, methods of determining the effect on the visual system, and treatment regimes.

Results and Conclusion
Participants, having become aware of these phenomena, and having experienced examination and treatment regimens, will be encouraged to approach a vision examination with a better understanding of the visual ergonomics.

WORKSHOP # 2 (WS2)

Scleral lens fitting with Profilometry

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Topic
Clinical

Abstract

Scleral lenses are getting much attention by researchers and practitioners because they provide an ever-increasing acceptance as the standard for irregular corneas and ocular surface diseases. Many practitioners do not have the skills or experience to confidently fit scleral lenses.

This workshop is aimed at new and intermediate scleral lens fitters and provides hands-on opportunity to improve scleral fitting. This workshop is available for a maximum of 15 participants.

Kyriakos and Antonia Telamitsi have a private practice in Limassol Cyprus and have extensive experience in fitting scleral lenses. Kyriakos has presented internationally on the subject and is the author of a number of posters on scleral lenses, FSLS.

The Eye Surface Profiler (ESP) by Eaglet Eye is the scleral lens fitting champion for your practice. ESP allows for highly accurate corneal and scleral measurements and precise assessment of the most pathologic eyes. The First Lens Fit Algorithms that are integrated into the ESP software make the scleral lens fitting process faster, easier and more precise.

Program:
- Introduction to scleral lenses
- Available resources
- How to start building a scleral lens practice
- Profilometry and ocular shape
- Using the Eye Surface Profiler (ESP) for measuring the eye and assess the ocular shape
- Slit-lamp assessment

WORKSHOP # 3 (WS3)

AI: a teaching tool to enhance teaching and learning or just a cheating tool?

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Topic
Educational

Abstract

Purpose
In recent years, the integration of Artificial Intelligence (AI) into education has received increasing attention as a powerful tool to enhance the teaching-learning process. This lecture explores the ways in which AI can be used to augment traditional teaching methods, fostering a more dynamic and personalized educational experience including its limitations.

AI-driven platforms offer adaptive learning solutions, tailoring content to the individualized needs and pace of each student. Through continuous assessment and data analysis, AI algorithms identify areas of strength and weakness, enabling educators to provide targeted interventions and personalized learning paths. This adaptability not only maximizes student engagement but also ensures that learners receive the support they require, thereby minimizing gaps in comprehension.

AI-powered chatbots and virtual assistants have emerged as invaluable aids for educators. These intelligent systems can handle routine administrative tasks, allowing teachers to allocate more time and energy towards content creation and interactive teaching methods. Additionally, chatbots offer instant, personalized support to students, answering queries and providing immediate feedback, enhancing the learning experience beyond the confines of the classroom.

AI's natural language processing capabilities also facilitate the development of intelligent tutoring systems, which can simulate one-on-one interactions between students and teachers. These systems provide instant feedback on assignments, offer additional resources, and adapt instruction in real time, providing students with a highly responsive learning environment.

This workshop/ lecture provides attendees with examples of how to use AI in practice. In addition, its limitations, ethical considerations and responsible implementation are discussed.

WORKSHOP # 4 (WS4)

My questions, your answers about myopia management

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Topic
Clinical

Abstract

Purpose
To demonstrate a logical and personalized approach to myopic management.

Content
Literature review of the mechanisms explaining the onset/evolution of myopia. Retinal homeostasis is explained. Management algorithm is suggested. Finally, four challenging cases are presented (interactive discussion)

Results
The eye grows in response to visual stimuli quality. Release of biomodulators influence scleral remodeling. Equilibrium is reached in the presence of myopic/ hyperopic defocus, modulated by accommodation and intraocular pressure. Management strategies involve assessment/treatment of binocular vision, followed by optical, pharma or combined therapies. Case reports: fast progression at a young age, anisomyopia, high myopia with moderate astigmatism, and convergence insufficiency patient.

Conclusion
ECPs must rationalize their approach and customize it.

WORKSHOP #5 (WS5)

Essilor® Instruments Vision Lab – Hands on refraction

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Topic
Clinical

Abstract

Objectives
The session aims to demonstrate the practical applications of two of the phoropter models offered by Essilor Luxottica, the Vision RTM -800 and a compact alternative the Vision STM -700 emphasizing the integration of a new refractive methodology the Digital Infinite Refraction into modern optometry.

This workshop will highlight the comparative advantages of each phoropter model, focusing on their technological features and their role in modern eye care. Through hands-on demonstrations and discussions, participants will gain insight into how these instruments can be incorporated into clinical settings to improve patient outcomes. The Vision RTM -800 combines traditional phoropter set-up with technological advancements, offering a fully digital experience.

The Vision STM -700, a compact phoropter system, embodies the move towards advanced optometric technology, prioritizing space saving, efficiency and patient-centric care without sacrificing precision.

Both models incorporate “Smart programs,” semi-automated workflows that can personalize the refraction process to meet individual patient needs or practitioner preferences. These features streamline patient assessments with ensures accuracy and increasing consistency.

Attendees will explore these technologies through interactive demonstrations, understanding their clinical application for improved patient outcomes. Alongside, two related talks will expand the discussion on refraction’s future and vision correction, aiming for a deep comprehension of modern and innovative refraction practices.

The presentation is part of a broader conversation on the future of refraction and vision correction. The goal is to provide attendees with a comprehensive understanding of how these innovative approaches could be implemented into refraction practice, underscoring the importance of technology in advancing the field of optometry.

ABOUT THE ACADEMY

THE EUROPEAN ACADEMY OF OPTOMETRY AND OPTICS (E.A.O.O.)

The Academy was launched in Lausanne, Switzerland in May 2009, at the Spring Meeting of the European Council of Optometry and Optics (ECOO). The Secretariat is hosted by the College of Optometrists, London, United Kingdom. Our mission is to facilitate the changing face of optometry and optics in Europe by engaging, educating, inspiring and motivating our educators, students, researchers and practitioners to achieve the highest level of practice.

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