Universidade do Minho
Escola de Ciências

CIOCV 2018

CONGRESSO INTERNACIONAL DE OPTOMETRIA E CIÊNCIAS DA VISÃO

UNIVERSIDADE DO MINHO
28 e 29 ABRIL

ABSTRACTS BOOK CIOCV'2018

LIVRO DE RESUMOS CIOCV'2018

ISBN | 978-989-54154-0-3

Edição / ***Edition*** **|** Comissão Organizadora do 15º Congresso Internacional de Optometria e Ciências da Visão (CIOCV'2018); Membros/*Members* Madalena Lira, Jorge M. Jorge, João Linhares, António Queirós.

Coordenação /*Coordination* | João Linhares

Distribuição / ***Distribution*** **|** Secretaria do Congresso Internacional de Optometria e Ciências da Visão
Departamento de Física
Universidade do Minho
Campus de Gualtar
4710-057 Braga (Portugal)

Telf: +351253604320 Fax: +351253604061
e-mail: ciocv@fisica.uminho.pt
URL: http://ciocv.fisica.uminho.pt

Capa / ***Cover*** **|** Paulo Gomes, Portugal.
Impressão / ***Printing*** **|** Paulo Gomes, Portugal - pauloreisgomes@gmail.com

Welcome Message

Dear colleagues,
The International Conference in Optometry and Visual Science (CIOCV) was organized 14 times already. The celebration of 15 years of existence, as the same amount of conference editions, the CIOCV'18, happened in Braga (Portugal) on the 28th and the 29th of April, at the University of Minho (http://www.uminho.pt/home).

Even with the topics covered and addressed in former events, we still have a great number of people that have been working towards transforming Optometry in a core health area and in a primary eye care area, not only in Portugal but across the world. We want to celebrate and bring together all these new and former actors at the clinical optometry and the research optometry.

As with the other events, we did try to present a scientific program that can cover the education needs of our attendees. We did work very hard to ensure that this 15th edition can assist with the challenges demanded by the general population and the overall of the optometrists and continue to provide the never ending and required continuous education, keeping the focus on the core of optometry and in its most recent techniques and clinical protocols.

We truly welcome you to the 15th International Conference in Optometry and Visual Science.

With kind regards,
The Organizing Committee of the CIOCV2018

Follow us at: Facebook: www.facebook.com/ciocv/
Webpage: ciocv.fisica.uminho.pt

Index

Página/*Page*

Organizing/Scientific Committee

Organizing Committee

Chairman

Madalena Lira

Vice-President

Jorge Jorge

Secretary

João Linhares

Threasure

António Queirós

Scientific Committee Coordinators

Jorge Jorge

João Linhares

Madalena Lira

Scientific Committee

Local Scientific Committee

Amélia Fernandes Nunes, PhD, Portugal

Ana Maria Pinho, MD, PhD, Portugal

António Baptista, OD, PhD, Portugal

António Filipe Macedo, OD, PhD, Portugal

António Queirós, OD, PhD, Portugal

Francisco Brardo, OD, PhD, Portugal

João Linhares, OD, PhD, Portugal

Jorge Jorge, OD, PhD, Portugal

José Diaz Rey, MD, PhD, Portugal

José Manuel González- Meijome, OD, PhD, Portugal

Madalena Lira, OD, PhD, Portugal

Maria Elisabete Oliveira, PhD, Portugal

Paulo Rodrigues Botelho Fernandes, OD, PhD, Portugal

Pedro Monteiro, OD, PhD, Portugal

Sandra Franco, OD, PhD, Portugal

Program

- *Lectures*
- *Clinical Reports*
- *Free Papers*
- *Posters*

Lectures

Session	Saturday 28th April 2018	
8:00	**Registration**	
9:00	**Opening session**	Exm.o Senhor Reitor da Universidade do Minho Rui Vieira de Castro Exm.o Senhor Presidente do Cons. Pedagógico da E.C. da Universidade do Minho António Maurício Fonseca Exm.o Senhor Diretor do Centro de Física da E.C. da Universidade do Minho Mikhail Vasilevskiy Exm.o Senhor Diretor Adjunto do Dep. de Física da E.C. da Universidade do Minho Ricardo P. L. M. M. Ribeiro Exm.a Senhora Presidente da Comissão Organizadora do 15º CIOCV Madalena Lira
9:30	**Inaugural Session**	**Function and Future of the Optometrist in Europe and Latin Countries** *Carlos Luis Saona Santos*
10:40		**Optometry in Mozambique** *Sergio Latorre-Arteaga*
11.10	**Coffee-Break**/ Exhibition	
11:30	**Myopia**	**Is Modern Life Bad for Children's Eyes? NICER study** *Kathryn Saunders*
12:00		**Myopia and pathology – what's the magic number?** *Patrick Richardson*
12:30		**Myopia control – introducing myopia control into your practice.** *Patrick Richardson*
13:00	**Lunch**/ Exhibition	
14:30	**Visual Therapy**	**Scientific Evidence of Visual Therapy** *David Pablo Piñero Llorens*
15:15		**Phototherapy, Photosens and multisensory therapies; Other allies in the visual therapy consultation** *Marisol Garcia Rubio*
16:00	**Coffee-Break**/Exhibition	
16:30	**Contact Lenses**	**Regression of the orthokeratological effect. And now… What can we do?** *Francisco Sañudo Buitrago*
17:00		**Will the contact lenses business be profitable in spite of the internet sale?** *Vicente Luis Alós Matheu, Francisco Sañudo Buitrago*
18:00	**Closing ceremony of the first day with the support of:** **GrandVision – Portugal** **"Reading People"** *Alexandre Monteiro*	

Session	Saturday 29th April 2018	
8:30	**Registration**	
9:00	**Free Papers**	**The prevalence of myopia and high myopia by age in a clinical northern population in Portugal** *Soraia Sousa* **Automated kinetic perimetry in ophthalmic pathologies with genetic origin.** *Diana Maria Morais de Almeida* **Refractive and biometric parameters in a Portuguese population of 850 young adults who entered the University of Minho in 2017** *Ana R. Vaz* **Effect of the environmental stress on the ocular surface temperature** *Nery García-Porta* **Six-month Performance of Scleral Contact Lenses: Visual Acuity, Comfort and Handling Perspective** *Rute J. Macedo-de-Araújo* **Objective measurement of astigmatism induced by decentration of a bifocal contact lens** *António Miranda* **Influence of physical activity on visual skills in soccer players** *Carlos Baptista*
10:00	**Clinical cases**	**Study of endothelial morphology in patients with Diabetes Mellitus type 2** *Tiago, JF, Monteiro, P., Brardo, F.* **About vision recovery in a case of uncompensated keratoconus** *Edgar Conceição, Patrícia Lopes, Ivo Soares* **Preliminary Results on Rehabilitation of Vision using Scleral Supported Contact Lenses after Keratoconus Surgery and Advanced Keratoconus** *Ana Rita Silva, Filipe Esteves, José Salgado-Borges*
11:00	**Coffee-Break**/ Exhibition	
11:30	**Neuro Optometry**	**Evaluation exams in neuroptometry** *Matilde Mora Valencia* **Rehabilitation techniques in neuroptometry** *Matilde Mora Valencia*
13:00	**Lunch**/ Exhibition	
14:30	**Intraocular lenses**	**Optics of intraocular lenses for presbyopia** *Miguel Ribeiro*
15:00		**The role of the optometrist in pre and post surgical evaluation** *Santiago Escandon*
15:30		**PHAKIC ICL LENSES: advantages and disadvantages of their use in 2018** *Miguel Sousa Neves*
16:30	**Awards and certificates ceremony**	
17:00	**Conference end**	

Posters

Ner	AUTHOR(S)	TITLE
001	Anahí Gonzalez Bergaz, Alejandro Martínez, Águila, Begoña Fonseca, Alba Martín Gil	Accommodative spasm treated with visual therapy and soft contact lenses
002	Hugo Pena-Verdeal, Rosa Calo-Santiago, Eva Yebra-Pimentel, Maria J. Giraldez	Analysis of the difference between the results of three visual therapy anaglyphs in young healthy subjects
003	Maria Serramito Blanco, Carlos Carpena Torres, Jesus Carballo, David Piñero, Gonzalo Carracedo.	Anterior corneal curvature and aberration after scleral lens wear in keratoconus patients
004	Jessica Gomes and Sandra Franco	Applications of real-time measurement of ocular aberrations
005	Joao Senra, António Queirós	Visionix L67 auto-refraction: A clínical approach
006	Ana Rita Sebastião, Ana Rita Martins, Amélia Nunes	Qualitative evaluation of dry eye in smokers
007	Elisa Marçal, Paula Silva; Francisco Ferreira, Pedro Monteiro, Amélia Nunes	Ocular biometry and optical coherence tomography in anisometropia
008	Yenifer Zuley Cañón Cárdenas	Desiases burden by refractive errors in children from Colombia from 2009 to 2014.
009	Carlos Carpena Torres, María Serramito Blanco, Cristina Pastrana Robles, Jesús Carballo Álvarez, Gonzalo Carracedo Rodríguez	Characterization of corneal high-order aberrations in keratoconus of different phenotypes
010	Ana Rita Rosmaninho Silva Pereira, José Alberto Diaz Rey, António Queirós	Comparing IOP measurements in contact lenses users with the ICare, the ICare100 and the Pulsair
011	Cátia Almeida, Andresa Fernandes, Amélia Fernandes Nunes	Comparative study between Mohindra Retinoscopy and Subjective Refraction in young adults with accommodative excess.
012	Catarina Martins, Carolina Vieira, Ana Amorim-de-Sousa, Rute Macedo-de-Araújo, Jaume Pauné, José M González-Méijome, António Queirós	Comparative study of optical quality with different contact lens designs
013	Carolina Vieira, Catarina Martins, Ana Amorim-de-Sousa, Rute Macedo-de-Araújo, Jaume Pauné, António Queirós, José M González-Méijome	Comparative study of peripheral refraction with different contact lens designs
014	Silvia Garcia-Montero, Dolores Ferreiro, Eva Punín Dorrio, Maria J. Giraldez, Eva Yebra-Pimentel	Comparison of keratometry results between two topographers and one autorefractor-keratometer
015	Carlos Garcia-Resua, Hugo Pena-Verdeal, Silvia Garcia-Montero, Maria J. Giraldez, Eva Yebra-Pimentel	Correlation analysis between tear film osmolarity and area of break size
016	Yenifer Zuley Cañón Cárdenas	Difference in the prevalence of ocular tuberculosis according to sociodemographic variables in Colombia.
017	Dolores Ferreiro, Silvia Garcia-Montero, Rosa Calo-Santiago, Eva Yebra-Pimentel, Maria J. Giraldez	Differences in the measurements of the eccentricity between two commercially available topographers
018	Cátia Mariz, Sandra Franco	Digital eye strain in adolescents
019	Kishor Sapkota, Sandra Franco, Madalena Lira	Does soft contact lens wear affect intraocular pressure and corneal biomechanical properties?
020	Alba Martin-Gil, Begoña Fonseca, Alejando Martínez-Águila, Anahí Gonzalez and Jesús Pintor	Effect of Ap4A on Aquaporin-1 trafficking to plasma membrane in rabbit non-pigmented ciliary epithelial cells: Role of P2Y2 receptor in IOP raise
021	Begoña Fonseca, Matthew Felgate, Jesús Pintor, Julie Sanderson	Effect of Ap4A on retinal cells
022	Vázquez MC, Gigirey LM, Piñeiro-Ces A, del Oro CP	Estimation of dual sensory loss among people aged 80 years and over living in nursing homes

023	Duarte Fernandes, Rita Tuna, Ana Paula Gonçalves, Rui Calado, Amélia Fernandes Nunes	Frequency of anisometropia in children aged 5 years.
024	Marta Magro; Clarisse Reis; Pedro Monteiro; Elsa Fonseca	Higher Order Ocular Aberrations in Diabetes Mellitus Type II Patients
025	Martínez- Alberquilla, I, Rico-del-Viejo L, Gómez-Sanz, FJ, Lorente-Velázquez A, Hernández-Verdejo JL, García-Montero, M	How does contact lens design for visual terminal display affect on the ocular surface integrity?
026	Cristina Pastrana, Carlos Carpena, Candela Rodriguez-Pomar, Maria Serramito, Gonzalo Carracedo	How long should it be waited to evaluate soft contact lenses after its insertion?
027	Rodríguez- Pomar C, Pastrana C, Carpena C, Pintor J, Carracedo G	In-vivo wettability changes after tear substitutes instillation in hydrophilic contact lens users
028	Amorim-de-Sousa A, Macedo-de-Araújo R, Amorim A, Queirós A, Fernandes P, González-Méijome JM.	Influence of Scleral Contact Lens on the Electrophysiological Response of the Retina? A Pilot Study.
029	Ana Rita Martins, Amélia Nunes, Arminda Jorge	Influence of Vision Therapy on Quality of Life
030	Jacobo Garcia-Queiruga, Hugo Pena-Verdeal, Carlos Garcia-Resua, Maria J. Giraldez, Eva Yebra-Pimentel	Inter-week comparison of the meibomian lipid secretion in a group of healthy subjects
031	Alejandro Martínez Águila, Begoña Fonseca, Anahí González Bergaz, Alba Martín Gil, María Pérez de Lara, María Rosa Gómez Villafuertes, Jesús Pintor	Melatonin and analogues, potential supplements for glaucoma treatment
032	Andresa Fernandes, Cátia Almeida, Ana Rita Tuna, Amélia Fernandes Nunes	New technologies and visual behavior in adolescence and young adults
033	Catarina F. M. Herdeiro; João M.M. Linhares; Sérgio M.C. Nascimento; Taisei Kondo; Yukinori Misaki; Shigeki Nakauchi	Optimization of lighting for paintings with psychophysics - influence of cultural factors
034	António Queirós, César Villa Collar, Ana Amorim-de-Sousa, Beatriz Gargallo, Ramón Gutiérrez, José M González-Méijome	Ortoqueratology before LASIK surgery: Clinical implications.
035	Andreia Esteves Gomes, João Manuel Maciel Linhares, Sérgio Miguel Cardoso Nascimento	Atmospheric Disorders in Chromatic Perception of Complex Natural Scenes: Comparing Urban and Rural Scenes
036	Sara Ferreira, Luis Monteiro, Catarina Ribeiro, Jorge Jorge	Myopia prevalence on a Portuguese population of children and tenagers.
037	Ana Rita Pascoa, Sandra Franco	Prevalence of accommodative disorders in a clinical population
038	Soraia Sousa, Jorge Jorge	Myopia progression on a clinical population
039	Jessica Gomes and Sandra Franco	Relationship between spherical aberration and accommodative lag in symptomatic subjects
040	Adelino, C., Monteiro, P. , Brardo, F.	Study of Corneal Thickness in Patients with Diabetes Mellitus Type 2
041	Rosado JL	Myopia control rates with ophthalmic lenses
042	Martínez- Alberquilla, I, Rico-del-Viejo L, Gómez-Sanz, FJ, Lorente-Velázquez A, Hernández-Verdejo JL, García-Montero, M	The impact of two contact lenses designed for visual display terminals on the ocular surface of habitual contact lens wearers.
043	Sónia Pedro, Vasco Nina de Almeida, Ivo Soares	A revision on the applicability of the ISNT rule.
044	Vázquez MC, Gigirey LM, Piñeiro-Ces A, del Oro CP	Visual impairment among older women residing in nursing homes: a cross-sectional study in Santiago de Compostela (Spain)
045	Eduardo Insua Pereira; Madalena Lira	Wearing time analysis in a population of soft contact lenses users

Lectures

Function and Future of the Optometrist in Europe and Latin Countries

Carlos Luis Saona Santos, PhD
Universitat Politécnica de Catalunya, Spain

Brief Curriculum Vitae

Professor Carlos Luis Saona Santos Diplomado en Óptica y Optometría por las Universidades Complutense de Madrid y Valencia.
Profesor Titular en la Universitat Politécnica de Catalunya (1978-2010) y Profesor invitado de la Universidade do Minho (1991-2000).
Profesor de Tecnología Óptica, Psicología Visual y Estética, Óptica Ocular, Óptica Fisiológica, Optometría, Contactología, Terapias Visuales Optométricas, Estrabismo, y Alteraciones Oculares por lentes de contacto.
Miembro del grupo que fundó la Escuela Universitaria de Óptica de Terrassa (Barcelona) el 7 de Noviembre de 1977.
Orientador de prácticas clínicas de Optometría en el Instituto Boston de oftalmología de Barcelona (1991-1999)
Subdirector de asuntos económicos, relaciones públicas e investigación de la Escuela Universitaria de Óptica de Terrassa, desde el 5 de Julio de 1982 hasta septiembre de 1989.
Director and Sport Vision Eye Care Specialist at the 1992 Paralympic Games. Olimpiadas de Barcelona, 1992
Profesor del Curs d'Optometria Clínica impartido por el Institut Universitari Barraquer, 1996-2000
Profesor invitado por Universidade do Minho para impartir clases teóricas de Contactología entre 1991 y 1998.
Publicaciones de libros de Tecnología Óptica, Óptica Ocular, Óptica Fisiológica, Optometría, y Contactología Clínica, entre 1975 y 2006, y artículos nacionales e internacionales.
Director del Departamento de Optometría, Lentes de Contacto, y Terapias visuales en el Instituto Boston de Oftalmología en Barcelona (1990-1999)
Director del Departamento de Terapias Visuales del Instituto Oftalmológico Integral de Barcelona (2000-2006)

Abstract

El aumento en la prevalencia de aberraciones oculares, como es el caso de la miopía, y de las disfunciones visuales en personas de todas las edades constituye en muchos países un reto sanitario que, entre otras estrategias, puede solucionarse formando profesionales sanitarios entre los que se encuentran los Optometristas u Ópticos-Optometristas.

El futuro de los optometristas en la Europa continental y Latinoamérica dependerá de la inserción laboral que tengan en centros sanitarios tales como establecimientos de óptica, clínicas oftalmológicas y hospitales públicos y privados, actuando como profesionales sanitarios de atención primaria. Dicha inserción dependerá de diversos factores que van a exponerse en esta conferencia inaugural del 15º Congreso de Óptica y Ciencias de la Visión, en Portugal.

Optometry in Mozambique

Sergio Latorre-Arteaga, PhD
Universidade de Lúrio, Mozambique

Brief Curriculum Vitae

Sergio Latorre-Arteaga, Optometrista e Doutor em ciencias da Saude, especialista em Saude Publica. Professor auxiliar da Universidade Lurio (2013-2017). Responsável pela área de pesquisa em Optometria e membro honorário da Comissão Científica da Faculdade de Ciências de Saúde. Autor de 6 publicações científicas em jornais de alto impacto como o Boletim da Organização Mundial da Saúde.

Abstract

O objetivo é apresentar as linhas de investigaçao que foram elaboradas para responder às necessidades locais e contribuir para a melhoria da saúde visual da população num contexto com enormes dificuldades, onde a profissão de Optometria, com uma década de existência, integrase no Sistema Nacional de Saúde. Também serão discutidos os fatores que podem contribuir para o desenvolvimento das capacidades investigativas do corpo docente da Universidade Lurio.

Is Modern Life Bad for Children's Eyes? NICER study

Kathryn Saunders, PhD
University of Ulster, Northern Ireland

Brief Curriculum Vitae

Professor Kathryn Saunders is a senior academic at the University of Ulster with a special interest in paediatric optometry and myopia. She has published over 70 peer reviewed scientific papers whose topics center on the development of visual function both in the typically developing visual system and in the presence of neurological impairment. She has written and delivered lectures on the developing visual system and optometric management of infants and children at undergraduate and postgraduate level. In addition to academic and research work, Kathryn runs a teaching clinic at the University of Ulster where she regularly provides eye care for the pre-school children and those with special needs. Kathryn is a Fellow of the UK College of Optometrists and served for 12 years as an elected member of the College's Council.

Abstract

Research has shown that an increasing number of children are becoming myopic and the evidence suggests that myopia is happening earlier in childhood than in the past. Simple genetic factors cannot explain the rapid increase in prevalence of myopia across the world; environmental factors must be having an influence on eye growth to cause this "myopia epidemic". This talk will present data from studies across the world, including Portugal, demonstrating the increasing numbers of individuals with myopia. It will also use data from the Northern Ireland Childhood Errors of Refraction (NICER) Study, a prospective study of eyes and vision of children and young adults in the UK, to profile myopic progression and age of onset data for children in the 21st Century. Risk factors associated with myopia, including the potentially modifiable risk factors relating to environment and lifestyle, will be presented and discussed. The presentation will discuss how data from the NICER study and other studies of childhood myopia may influence optometrists' approach to sight test intervals for children and what advice optometrists should be giving to parents about the risks of developing refractive error during childhood.

Myopia and pathology – what's the magic number?

Patrick Richardson, OD
University of Ulster, Northern Ireland

Brief Curriculum Vitae

Patrick Richardson is a lecturer and optometrist working at Ulster University in Ireland, he gained his Optometry qualifications from City University and Moorfields Eye Hospital, London. He has an interest in contact lenses, myopia, glaucoma and anything containing clever optics and electronics. Patrick enjoys teaching Visual Optics, Ocular Pathology and Contact lenses to the undergraduate students and he runs an online postgraduate course in Glaucoma Management; he was recently voted AOP Optometry lecturer of the year 2018. His current work obsessions are OCT imaging, myopia control and glaucoma.

Abstract

We know that high myopia over -5.00 D is associated with an increased risk of pathology, but is there any safe level of myopia?
The talk will review the most common types of myopic pathology and their prevalence linked to axial length and myopia. This evidence is useful for practitioners managing myopic complications in optometric practice and for those considering the evidence for myopia control.

Myopia control – introducing myopia control into your practice.

Patrick Richardson, OD
University of Ulster, Northern Ireland

Brief Curriculum Vitae

Patrick Richardson is a lecturer and optometrist working at Ulster University in Ireland, he gained his Optometry qualifications from City University and Moorfields Eye Hospital, London. He has an interest in contact lenses, myopia, glaucoma and anything containing clever optics and electronics. Patrick enjoys teaching Visual Optics, Ocular Pathology and Contact lenses to the undergraduate students and he runs an online postgraduate course in Glaucoma Management; he was recently voted AOP Optometry lecturer of the year 2018. His current work obsessions are OCT imaging, myopia control and glaucoma.

Abstract

There have been questions about the evidence for myopia control for decades and many believe the debate is no longer does it work, but how can I incorporate it into my clinical practice. This lecture will review the options, risks and potential benefits of setting up a myopia control clinic within an optometry practice.

Scientific Evidence of Visual Therapy

David Pablo Piñero Llorens, PhD
Universidad de Alicante, Alicante, España
Hospital Vithas Medimar Internacional, Alicante, España

Brief Curriculum Vitae

Doctor por la Universidad de Alicante en 2010, Graduado en Óptica y Optometría por la Universidad de Alicante (2011), obteniendo el Premio Extraordinario de Diplomatura en Óptica y Optometría (1998), Licenciado en Documentación por la Universitat Oberta de Catalunya (2007) y Especialista Universitario en Optometría Pre y Postquirúrgica por la Universidad de Valladolid (2002). Es investigador Ramón y Cajal y profesor del Departamento de Óptica, Farmacología y Anatomía de la Universidad de Alicante, responsable de la Unidad de Investigación del Departamento de Oftalmología (Oftalmar) del Hospital Vithas Medimar Internacional y coordinador científico de la Fundación para la Calidad Visual (FUNCAVIS). Es editor asociado de las revistas científicas Journal of Optometry, BMC Ophthalmology y Journal of Ophthalmology. Tiene una gran e intensa actividad investigadora, habiendo publicado más de 200 artículos científicos. Ha participado en diversos proyectos de investigación, siendo investigador principal en cuatro de ellos y coordinador de un proyecto europeo del 7º Programa Marco. Ha recibido varios premios y reconocimientos por su trayectoria y trabajos científicos, habiendo sido considerado por la revista The Ophthalmologist en 2014 como el 12º autor científico del mundo en publicaciones sobre visión y el 5º del mundo en el ámbito específico del queratocono. Recibió el reconocimiento como "Optometrista de Honor" por el Colegio de Ópticos-Optometristas de la Comunitat Valenciana en diciembre de 2014.

Abstract

La terapia visual consiste en conjunto de técnicas y ejercicios cuya finalidad es la mejora de la eficiencia y magnitud de ciertas capacidades visuales. Una gran parte de la evidencia científica existente hasta la fecha sobre la eficacia de la terapia visual está focalizada en la insuficiencia de convergencia, existiendo varios ensayos clínicos controlados que han constatado la utilidad de ciertos ejercicios para su tratamiento. En cambio, la evidencia existente es muy escasa en lo referente a la terapia visual en exceso de convergencia y divergencia, limitándose únicamente a series de casos y casos clínicos. Existe un ensayo clínico controlado que constata la eficacia de la terapia visual en disfunciones acomodativas, empleando una muestra en la que dicha disfunción se hallaba combinada con insuficiencia de convergencia. A su vez, existen varias series de casos mostrando resultados positivos de la terapia visual en distintos tipos de anomalías acomodativas. En lo referente a anomalías estrábicas, existe una muy limitada evidencia científica, exclusivamente limitada a casos clínicos en los que en muchos de ellos la terapia se emplea como terapia combinada con la cirugía. También existe evidencia científica sobre el uso de terapia visual para el tratamiento de la ambliopía, incluyendo ensayos clínicos controlados y varias series de casos. La mayor parte de esta evidencia se centra en el uso de la terapia perceptual y dicóptica. Por último, hay que mencionar la evidencia científica existente sobre el uso de la terapia visual en algunas anomalías neurológicas para la rehabilitación de la oculomotricidad del paciente.

Phototherapy, Photosens and multisensory therapies: Other allies in the visual therapy consultation

María Soledad García Rubio, PhD
COI Centro de Optometria Internacional, España

Brief Curriculum Vitae

Marisol García es Diplomada en Óptica y Optometría por las universidades de Madrid y Granada. Su preocupación por la optometría pediátrica y la terapia visual la llevaron a estudiar en L'a Eccoleé Libre de Optometria de Canadá bajo la dirección de Armand Bastien. Después siguió sus estudios con problemas de visión infantil en el Noel Center de Ohio con el Dr. Streff y más tarde, su interés por la visión deportiva, la convirtió en la primera española que estudio esta especialidad en Pacific Univeristy teniendo como tutores a los Profesores Alan Reichow y Bradley Coffey.
Obtuvo su doctorado en Optometría por OIU con su tesis sobre la aplicación y diseño en lentes para Ortoqueratología. Además es licenciada en Documentación por la Universidad Complutense donde obtuvo su DAE y fue nombrada profesora honorifica.
Ha sido profesora de Optometría y Terapia Visual para el CNOO y en el COI.
Directora de numerosos proyectos de investigación y ponente en congresos Nacionales e Internacionales.
Es fundadora del Centro de Optometría Internacional y presidenta del patronato de la Fundación Visión COI.

Abstract

La aplicación de la luz en el campo de la neurología, traumatología, dermatología y psiquiatría está ampliamente estudia, difundida y contrastada.
En el área de la terapia visual se lleva aplicando desde principios del siglo XX, sobre todo en EEUU. Como sucede en una gran mayoría de procedimientos aplicados en optometría no está suficientemente investigado, sin embargo se puede constatar una amplia experiencia clínica. También existe una vasta investigación y documentación en el área de la fisiológica que justifican el uso de estas técnicas.
Ahora, las nuevas tecnologías y en mayor conocimiento en neurociencia nos permite aceleras el proceso de recuperación visual aplicando una combinación de fototerapia, estimulación auditiva y vestibular con demanda cognitiva de alto nivel. Se trata de unir esfuerzos, abordar la vía por diferentes puntos para que la sumación de estímulos permita alcanzar el "nivel de disparo" y hacer que la información visual llegue a la corteza visual y pueda ser interpretada correctamente.
La retina transforma la luz en estimulo eléctrico que viaja a través de la vía óptica impactando en ganglios y núcleos que estimulan glándulas y transforman estos estímulos eléctricos en sustancias químicas. Por otra parte el SARA o sistema reticular activador o Sistema reticular ascendente-descendente tiene como función más importante la relación sueño/vigilia y el control de la consciencia. Su porción ascendente es activada por estímulos visuales, auditivos, actividades mentales y estímulos provenientes de receptores del dolor, el tacto o la temperatura. Utilizamos la estimulación en esta estructura para acelerar o desbloquear los tratamientos en problemas visuales o de percepción visual. Esto también nos permite trabajar, mediante estimulación visual, en enfermedades neurodegenerativas como el Parkinson.

Regression of the orthokeratological effect. And now… What can we do?

Francisco Sañudo Buitrago, OD
University of Valencia, Spain

Brief Curriculum Vitae

Diploma in Optics from the Complutense University of Madrid.
Degree in pharmacology and ocular pathology at the University of Valencia.
Diploma in Optics and Optometry from the University of Alicante.
In professional practice since 1979.
Professor of the Department of Optics and Optometry and Vision Sciences of the University of Valencia.
He combines his profession as a professor at the University of Valencia with that of Technical Consultant of the Zas Visión group and clinic at the Avanza Vision Clinic of Valencia.

Abstract

Orthokeratology is a technique aiming at modifying the surface of the eye using contact lenses in order to compensate for a refractive defect. This has proved to be a predictable, safe and efficient way to treat refractive defects affecting vision.
The correct selection of the patient, the design and material of the lens to be used and the correct protocol of action during the period of adaptation are undoubtedly the factors that will determine the success of this technique.
The orthokeratological effect often regresses at some point during the treatment.
But what can be done in case of regression of the orthokeratological effect?
Knowing the causes and being able to differentiate them will help us resolve these regressions and keep the patient happy with this optometrical solution.
The regression of the orthokeratological effect has been found to be triggered by three causes, which in turn can be divided into various sub-causes:

- The lens
- Endogenous cause
- Exogenous cause


Will the contact lenses business be profitable in spite of the internet sale?

Vicente Luis Alós Matheu, OD
Zas Visión, Spain
Francisco Sañudo Buitrago, OD
University of Valencia, Spain

Brief Curriculum Vitae

Vicente Luis Alós Matheu:
Diploma in Optics from the UPC.
Diploma in Optics and Optometry from the University of Alicante.
Degree in Optics and Optometry from the University of Alicante.
Master in Atencion Sanitaria Visual Avanzada from the University of Alicante.
In professional practice since 1986
President of Zas Visión (optics cooperative)
Associate professor of the Department of Optics and Optometry and Vision Sciences of the University of Valencia. (2006-2010)
Adavanced program for optics management por ESADE bussines school

Francisco Sañudo Buitrago:
Diploma in Optics from the Complutense University of Madrid.
Degree in pharmacology and ocular pathology at the University of Valencia.
Diploma in Optics and Optometry from the University of Alicante.
In professional practice since 1979.
Professor of the Department of Optics and Optometry and Vision Sciences of the University of Valencia.
He combines his profession as a professor at the University of Valencia with that of Technical Consultant of the Zas Visión group and clinic at the Avanza Vision Clinic of Valencia.

Abstract

Con la aparición de la venta por internet, se está extendiendo un pesimismo entre los contactólogos, parece que la adaptación de lentes de contacto ya no es rentable.
De una manera sencilla, vamos a ver que luchar contra internet, no es misión imposible y que la solución está en nuestras manos.
Nuestra formación, nos dará la seguridad y hará que el paciente perciba el valor añadido. Debemos ser autocríticos.
No solo nos mueve el dinero, pero sí que sabemos, que el optometrista, tiene la buena costumbre de invertir en nuevas tecnologías, gran parte de lo que obtiene de beneficios; eso significa que, o hay beneficios o no podremos adquirir formación y equipos que nos ayuden a evolucionar.
El estudio y adaptación de la lente de contacto es fundamental, pero igual de importante es hacerle un seguimiento.
Resumiendo los temas a tratar:

- Gabinete, protocolo y pruebas a realizar.
- Elección de la lente de contacto.
- Aprendizaje del paciente, la gran importancia de enseñarle bien y explicarle el mantenimiento.
- Entrega de las lentes de contacto, porque hacerle un pack.
- Explicación de cómo realizar el reemplazo y su fecha de revisión.
- Entrega de la factura detallada y sus garantías (si las hay).

El objetivo de esta comunicación, es el de proponer un modelo de actuación profesional, que se ocupe más por la salud ocular de los pacientes, consiguiendo a la vez una mayor fidelización.

Evaluation exams in neuroptometry

Matilde Mora Valencia OD, Ph.D
Universitat de Valencia, España

Brief Curriculum Vitae

Colombiana Optómetra Licenciada, egresada Universidad de la Salle 1986, Diplomada en Fisiopatología y clínica ocular Fundación Universitaria San Martín, Especialista en Diagnóstico Diferencial en Cuidado Ocular Primario, Fundación Universitaria del Área Andina, Máster en Optometría y Ciencias de la Visión y Doctora en Optometría Por la Universitat de Valencia. Especialista en Manejo de pacientes con Daño cerebral, Terapia Visual, Consulta privada, Profesora asociada Universitat de Valencia

Abstract

El Exámen neurooptometrico es integrar la neurología en nuestro ejercicio profesional diario. Cada vez que valoramos un paciente con estrabismo, o revisamos una fondoscopia, y determinamos el tamaño de la excavación papilar, o determinamos una correspondencia sensorial anómala estamos evaluando la neurooptometría de un paciente. En la función visual intervienen 10 de los 12 pares craneales, y para que haya sinapsis o efapsis se requiere un adecuado impulso de los neurotransmisores, con un sistema anatómico en perfecto estado en donde las vias visuales y las células Magno y Parvo celulares nos permiten el acto de la visión. Conocer la biología celular de las neuronas, su neurofisiología, la comunicación nerviosa, la importancia de una adecuada alimentación, las áreaas asociativas del cerebro y el mapa cortical con divisiones precisas anatomo-funcionales es menester en el examen de evaluación neurooptométrica. La retina ese organo maravilloso de percepción visual, su distribución retinotópica y su fisiología especial de transformar el estímulo luminosos en un estímulo nervioso hace que seamos los principales actores del proceso visual. Desafortunadamente el óptico optometrísta no ha tomado conciencia de la importancia de su exámen visual y no sabe realizar el abordaje neurooptométrico del paciente. Se pretende realizar el exámen optométrico diario enfocado desde la neurología.

Rehabilitation techniques in neuroptometry

Matilde Mora Valencia OD, Ph.D
Universitat de Valencia, España

Brief Curriculum Vitae

Colombiana Optómetra Licenciada, egresada Universidad de la Salle 1986, Diplomada en Fisiopatología y clínica ocular Fundación Universitaria San Martín, Especialista en Diagnóstico Diferencial en Cuidado Ocular Primario, Fundación Universitaria del Área Andina, Máster en Optometría y Ciencias de la Visión y Doctora en Optometría Por la Universitat de Valencia. Especialista en Manejo de pacientes con Daño cerebral, Terapia Visual, Consulta privada, Profesora asociada Universitat de Valencia

Abstract

Al hablar de rehabilitación en neurooptometría, se define tanto la rehabilitación en pacientes con estrabismo como en los procesos de lecto-escritura o acomodación donde para realizar un movimiento “tan simple” como un movimiento sacádico asociamos al cerebelo, los lóbulos Occipital, temporal, parietal y la parte dorsal del lóbulo frontal. Cuando realizamos Terapia visual, debemos tomar conciencia de la invasión neurológica que realizamos y en donde los mecanismos repetitivos que la acompañan hasta lograr la automatización son mecanismos de plasticidad cerebral de nuevas conexiones dendríticas que se establecerán. Atenderemos a la rehabilitación en oftalmoplejias interna y/o externa asociadas a paresias o parálisis oculares post traumáticas donde no solamente se encuentra afectado un músculo ocular sino varios simultáneamente y que incluye la rehabilitación sensorial cortical. Pacientes con ojo vago son pacientes la mayoría con afectaciones corticales, asi mismo se abordará la rehabilitación ocular post daño cerebral, donde la negligencia visual es un signo tratable. Intervenir oportunamente suele ser el éxito de la rehabilitación visual. Observaremos enfoques alternativos que describen la relación entre el cérebro y la conduta: Regiones del cerebro especializados para diferentes funciones, el lenguaje y las funciones cognitivas, corteza, procesos mentales y sus operaciones elementales, las células nerviosas y la conducta.

Optics of intraocular lenses for presbyopia

Miguel Faria Ribeiro, PhD
Center of Physics. University of Minho. Braga, Portugal.

Brief Curriculum Vitae

Miguel Faria Ribeiro, é Licenciado em Física Aplicada – Ramo Óptica e Optometria, Mestre em Optometria Avançada e Doutor em Ciências (Óptica Visual) pela Universidade do Minho. Os seus actuais interesses de investigação incidem no desenho e modelação de soluções ópticas para controlo da progressão da miopia e para compensação da presbiopia. É autor ou co-autor de 20 trabalhos científicos publicados em revistas internacionais, nas áreas do controlo da progressão da miopia, óptica visual e contactologia. É também co-autor de três capítulos de livros na área da contactologia e superfície ocular. Foi Professor Adjunto e Coordenador Científico da Licenciatura em Óptica e Optometria, no Instituto Superior de Educação e Ciências, em Lisboa, e é actualmente investigador Pós-doutorado do Centro de Física, da Universidade do Minho.

Abstract

Temos assistido nos últimos anos a um aumento significativo na taxa de implantação das denominadas lentes intra-oculares (LIO) premium, para compensação da presbiopia após cirurgia de extracção da catarata. À semelhança das lentes de contacto bi/multifocais, a óptica das LIO para presbiopia assenta no princípio físico de imagem simultânea para aumentar a profundidade de foco do olho, por forma a promover uma visão satisfatória ao longo de um determinado intervalo de vergências/distâncias. Apesar da diversidade de desenhos existente, a grande desvantagem de qualquer dispositivo de imagem simultânea estará sempre no limite físico imposto na qualidade final da imagem retiniana. Nestes dispositivos ópticos, a extensão da profundidade de foco do olho é conseguida às custas de uma repartição do contraste total por diferentes focos, o que pressupõe que por cada imagem bem focada o usuário perceba em seu redor uma ou mais imagens fora de foco. Felizmente, esta luz fora de foco acaba por ter um peso menor na percepção final do usuário, devido a um suposto efeito de neuro-adaptação do sistema visual, que, apesar da degradação óptica sofrida, permite manter a acuidade visual em alto contraste bastante robusta. No entanto, em situações de baixa iluminação os pacientes poderão percepcionar uma visão subóptima, assim como alguns fenómenos fóticos com consequências para a sua função visão e qualidade de vida.
É, portanto, uma prioridade de qualquer profissional da visão conhecer os benefícios e limitações impostos pelos princípios físicos destes dispositivos, na hora de avaliar a função visual destes pacientes.

The role of the optometrist in pre- and post-surgical evaluation

Santiago Escandón-García, PhD
Center of Physics. University of Minho. Braga, Portugal.

Brief Curriculum Vitae

Santiago graduated (with honours) in Optometry at the University of Santiago de Compostela (Spain) in 1997, and received his Master's degree in Optometry and Visual Sciences at the University of Beira Interior (Portugal) in 2009. He works in private practice since 1999 and he recently received his PhD degree in Optometry and Visual Sciences at the University of Minho with a thesis related to visual performance in pseudophakic patients implanted with multifocal lenses for presbyopia.

Abstract

With the increased popularity of ophthalmic interventions, optometrists have to deal with questions related to these procedures. Simultaneously, the sophistication of the devices used for some corrective purposes demand a professional that can join the knowledge of the device used with the desirable and undesirable effects induced. The optometrist can bridge the gap between the medical sciences and the engineering and optical characteristics of the devices used. It can be done as a passive intervention in the context of the daily optometric activity where patients question about the options, benefits and potential risks.

Also, can be an active part, before, during and after the intervention. In the pre-surgical preparation, is responsible for measuring the relevant ocular parameters to characterize the patient/eye. During the procedure, provides advice on the devices, the setup of the surgical parameters, its physical characteristics and impact in visual function. In the post-surgical domain will conduct the evaluation of the visual function to characterize the levels of efficacy and safety of the procedure and to assist the medical staff on the clinical decisions providing objective measures of visual performance and predicting the impact of subsequent interventions.

The goal of this talk is to discuss the different modes of interaction of the optometrist as a primary eye care provider with patients. Some of the most common procedures will be reviewed with special emphasis on new methods to assess the visual performance using optometric procedures, and its clinical interpretation in the context of autonomous practice or in multidisciplinary teams.

PHAKIC ICL LENSES: advantages and disadvantages of their use in 2018

Miguel Sousa Neves, MD
Hospital Valentim Ribeiro, Portugal

Brief Curriculum Vitae

Miguel Sousa Neves is a Consultant Ophthalmologist trained in England and Fellow of the Royal College of Ophthalmologists of Britain. He has a Fellowship in vitreo-retinal surgery but nowadays he spends most of its time doing refractive surgery. He usually spends 2 days per week in theatre performing anterior segment operations.
He is the owner of a large ophthalmic private practice in Portugal and Head of the Department of Ophthalmology of the Hospital Valentim Ribeiro. He is also very active in Health Care Management being the President of the Medical Council Commission on Healthcare Projects and of the Portuguese Society for Health Care Management. He holds a Master degree in Healthcare Management.

Abstract

Phakic intraocular lenses are being used more and more for the correction of myopia, hypermetropia and astigmatism as issues on safety and patients'satisfaction with lasik have been negatively affected in recent years.
In Portugal Artisan and Artiflex phakic lenses were widely used by refractive surgeons while only a few were using the ICL Staar lenses which are placed behind the iris.
The main advantages of the ICL lens have to do with the quality of vision which is excellent, the fact that the operation and revovery times are minimal and the rate of complications extremely low. In comparison with artiflex/artisan lenses they rarely cause relevant endothelial cell loss and nowadays with the introduction of the model of a central flow (central hole), besides exempting from doing an iridectomy, it very rarely causes cataracts.
The main disadvantage is the fact that it is an intraocular procedure in comparison with laser refractive surgery although the risk of infection is very rare. Other risk factors have to do with the formation of cataracts if the ICL does not stay safely away from the crystalline lens and the surgeon learning curve on the calculation of its size and performing the surgical procedure itself.
ICL Staar lenses are nowadays the main choice for the correction of refractive errors when the patient wants to get rid of glasses and/or contact lenses and the degree of correction is higher than the normal range for ordinary laser procedures.

Clinical Reports

Study of endothelial morphology in patients with Diabetes Mellitus type 2

Tiago, JF, Monteiro, P., Brardo, F.

Abstract

Objective: To analyse endothelial morphology in the corneal paracentral zone, namely, endothelial cell density (ECD), mean cell area (ACM), coefficient of variation (CoV) of cell size and percentage of hexagonality (HEX) in patients with Diabetes Mellitus type 2 (DMt2).

Materials and methods: The study included 32 subjects with DMt2 and 32 subjects without DMt2 with a mean age of 68.00±6.71 and 61.84±6.81, respectively. The morphological characteristics of the corneal endothelium of each domain eye are obtained using a specular non-contact microscope (Nidek CEM-530) along eight positions of the paracentral zone (0° to 135°).

Results: The results obtained showed no statistical differences between the two study groups for the analysed parameters; ECD ($p = 0.819$), ACM ($p = 0.925$) and CoV ($p = 0.619$), respectively. However, there was an average trend for a decrease in the first three parameters, previously described, in the group of diabetic patients except for hexagonality parameter.

Conclusion: Considering the obtained results, it can be concluded that there are no differences between subjects with DMt2 and subjects without DMt2 with respect to DCE, ACM, CoV or hexagonality in the paracentral area of the cornea, for the patients analysed.

About vision recovery in a case of uncompensated keratoconus

Edgar Conceição, Patrícia Lopes, Ivo Soares

Abstract

Introduction: Although keratoconus is relatively frequent (1:2000), the number of patients that are not adequately compensated may be considered as surprising. This case represents one of these situations, where a significant AV recovery is achieved, even after a long period without a proper refractive compensation.

Clinical Case: Female, 39 years-old, presented herself for an optometric examination with complains of bad vision in her OS since her teenage years.

Twelve years ago, an ophthalmologist indicated that the situation was irreversible and no prescription was needed. Last ophthalmologic exam was 7 years ago with equal outcome.

The ocular and general health history is negative. Family background is irrelevant.

The unaided VA was1.2 and count fingers at 3m to the right and left eye respectively. During examination it was detected a binocular keratoconus, being worse at the left eye.

After trials, a Rose K2 was adapted to the OS. After a week, she had VAOD=1.2, VAOS = 0.6 and VAOU =1.2. After a month VAOS=0.7(-2/5), while the others VA remain the same.

Initially the patient had a tendency to suppress her OS at a distance (Worth) and had a stereoacuity of 400''. After a month, the suppression tendency was almost gone, with a stereoacuity of 50''.

Discussion: This case demonstrates once again the effectiveness of LCRPG in cases of keratoconus. Considering the long period without refractive compensation (12 years), a significant improvement of vision was achieved. It also represents an example of the impact that optometry can have on patients visual health.

Preliminary Results on Rehabilitation of Vision using Scleral Supported Contact Lenses after Keratoconus Surgery and Advanced Keratoconus

Ana Rita Silva, Filipe Esteves, José Salgado-Borges

Abstract

Goals: To report the short and medium-term results of visual acuity and ocular tolerance, with a scleral supported contact lens fitted after implantation of intra-corneal ring segments (ICRS) for keratoconus and advanced keratoconus (Ks).

Setting: Clinsborges and Hospital Privado da Boa Nova, Porto, Portugal.

Methods: The Scleral supported contact lenses used were made of Paflufocon D (oxygen permeability = 100 barrer), with a 16.5 mm diameter and vaulting sagittal height between 3900 and 5600 microns. The sagittal height was selected considering the elevation of the 10mm of the central cornea, and the desired separation between lens and cornea (about 300 microns). The LCZ (limbal clearance zone) and SLZ (scleral landing zone) were also considered because we can change them. The patients were evaluated one hour after inserting the lens, and again after thirty days of waring the lens.

Results: Four patients were evaluated - 3 eyes with ICRS (group1) and 4 eyes of advanced Keratoconus (group2). In group1 best visual acuity (BVA) with glasses or standard CL was 0.3-0.5. One hour after adapting scleral lenses, the VA improved in all eyes to 0.6- 0.9.
In group2, the baseline BVA was 0.2-0.6. One hour after adapting scleral lenses the VA was 0.8-0.9. Thirty days later BVA was the same in both groups. In neither of the groups we found dyed and corneal hypoxia. All patients reported significant improvement in visual quality maintaining high levels of comfort.

Conclusions: There is a significant increase in visual acuity with the scleral lenses. Scleral supported contact lenses can be used as an adjunct to corneal surgery for rehabilitation of keratoconus patients.

Funding: None of the authors have conflicts of interest do declare.

Free Papers

Free Paper

#001

The prevalence of myopia and high myopia by age in a clinical northern population in Portugal

Soraia Sousa, Jorge Jorge

Abstract

"Objetivo: Avaliar a prevalência da miopia e da miopia alta, de acordo com a idade, numa população clínica do norte de Portugal.

Métodos: Foram selecionados 5493 indivíduos (3211 mulheres) com miopia< -0,50D e alta miopia< -6,00D (esférico equivalente) com registo da prescrição na base de dados das 14 ópticas em estudo. A amostra foi dividida em 10 escalões etários e apenas foram considerados dados do olho direito para a análise estatística.

Resultados: A prevalência da miopia alta foi de 8,2% (446). O valo médio do erro refrativo (equivalente esférico) foi -2,63 ± 2,32D. A prevalência da miopia diminui progressivamente com o aumento da idade sendo que aproximadamente metade da população míope encontra-se nas faixas etárias dos 10 aos 19 anos e dos 20 aos 29 anos. A alta miopia mostrou ter uma maior prevalência na faixa etária dos 20 aos 29 anos e dos 30 aos 39 anos (4,1%). Não existiram diferenças estatisticamente significativas do erro refrativo nos diferentes escalões, no entanto nos grupos etários dos 20-29 até aos 60-69 os resultados variam entre -2,70 ±2,20D e -2,84 ±2,67D.

Conclusão: A miopia tem uma maior prevalência nas faixas etárias mais jovens (entre os 10 e os 39 anos) e cerca de 1 em cada 5 míopes nessas faixas etárias apresentam miopia alta."

Free Paper

#002

Automated kinetic perimetry in ophthalmic pathologies with genetic origin

Diana Maria Morais de Almeida

Abstract

In the management of patients suffering from ophthalmological pathologies with genetic origin, a kinetic visual field is realized. The diagnosis of these pathologies, such as retinitis pigmentosa or Stargardt's disease, and the monitoring of evolution are partly based on this examination, since it is often the disturbance of the visual field its first manifestation.

The Visual field test may be performed manually like with the Goldmann perimeter, however automated perimetry is more commonly used.

At the " Hôpital Ophtalmique Jules Gonin" in Lausanne, we use the Octopus 900 from Haag-Streit International. In this presentation we propose to list the advantages and disadvantages of this method, as well as its limitations.

Its a subjective method that in addition to the patient depends a lot on the technique and the experience exercised by the technician.

Clinical cases, followed in Hopital Ophtalmique, are presented with the visual field results and other relevant information which we can link visual field interpretation with the clinical situation.

Free Paper

#003

Refractive and biometric parameters in a Portuguese population of 850 young adults who entered the University of Minho in 2017

Ana R. Vaz; Miranda Antonio; Araújo Rute J .; Lopes-Ferreira, Daniela; Vukalic, Erna; Roknic, Daliborka; Kangler, Ma?a; Faria-Ribeiro, Miguel A; Peixoto-de-Matos Sofia C .; Amorim-de-Sousa, Ana I .; Amorim, André; Jorge J .; Fernandes, Paulo; Queiros António; González-Méijome, José M

Abstract

Purpose: There is a current trend towards early-onset myopia, and an increasing proportion of the population is using some form of visual correction from early life. Previous studies in this geographical area found prevalences of myopia of 5% in the age group of 6 to 12% at 9 years, almost 17% at 14 years. The objective of this study was to evaluate the refractory and biometric data of the subjects who entered the university for the first time.

Methods: A random sample of 850 students who entered the University for the first time was recruited, representing approximately 30% of new students entering the University of Minho. After reading and accepting informed consent, they were subjected to autorefracture, biometry, and keratometry using noninvasive methods. To avoid unintended accommodation in non-cycloplegic conditions, an open field auto-refractometer (WAM5500, Grand Seiko, Japan) was used. Axial length (AL) and corneal curvature were measured with IOL Master (Zeiss, Germany). The protocol was compatible with the Declaration of Helsinki and was approved by the Subcommittee on Ethics in Life and Health Sciences. Statistical analysis was performed using the paired sample T-test and ANOVA.

Results: The mean age was 17 ± 5 years (63% female, 37% male) and the last visual examination was 2.2 ± 2.3 years ago (range: 0 to 13 years). The criterion of myopia, defined as spherical equivalent (M) <= -0.75, was present at 30% when the right and left eyes were analyzed separately. The emmetropia criterion, with M between -0.74 and -0.49, was reached by 55% of the individuals and hypermetropia, of +0.50 or greater, was present in 20%. Anisometropia, greater than 2D and 1D, was present in 1% and 3% of the population. The mean M and the axial length were -1.97 ± 1D and 24.5 ± 1.0 mm for the myopes, 0.05 ± 0.8D and 23.5 ± 0.8 mm for the emetopes, 0, 95 ± 0.8D and 23.0 ± 0.8 mm for hypermetropic subjects (ANOVA with post-hoc Bonferroni test, p> 0.001, all comparisons.)

Conclusion: Myopia affects more than 30% of students aged 17 to 25 entering higher education in Portugal. These values represent an increase over previous evaluations over the last 5 years and are associated with an axial length elongation.

Free Paper

#004

Effect of the environmental stress on the ocular surface temperature

Nery García-Porta, Juan Tabernero, Shahina Pardhan

Abstract

Purpose: Thermography is a promising technique to assess the tear film stability, as the thermal cameras are non-contact devices and require no illumination of the eye. It can be used to measure variations in the thermodynamical properties of the tear film and to estimate thermal irregularities. The aim of the study was to explore the effect of controlled low humidity conditions on the tear film assessed as variations of the ocular surface temperature (OST).

Material: Seventeen healthy adults (63±15 years of age) were exposed to desiccating environmental stress (5% relative humidity) for 1.5 hours in a Controlled Environmental Chamber (CEC) (PSR-B, WEISS Gallenkamp) based in the Vision and Eye Research Unit at Anglia Ruskin University. OST was measured using an infrared thermal camera (Therm-App Hz, Opgal Optronic Industries Ltd, Israel) before and after being in the CEC for 90 min, recording images while the participants blinked normally during 30 seconds. The tear film stability was also assessed with the Fluorescein tear Break Up Time (FBUT) test. Thermal images were analyzed using Mathematica to calculate the mean temperature over a central circular area (8 mm diameter) as a function of time. Statistical analysis was done with SPSS.

Results: The rate at which the temperature decreased was significantly faster after being in the CEC ($p=0.013$). FBUT showed a significant decrease after being under controlled environmental stress ($p=0.038$).

Conclusions: The exposure to low humidity increases the cooling rate (°C/s) of the ocular surface and the tear film stability assessed by FBUT decreases.

Free Paper

#005

Six-month Performance of Scleral Contact Lenses: Visual Acuity, Comfort and Handling Perspective

Rute J. Macedo-de-Araújo, Eef van der Worp, Ana Amorim-de-Sousa, José M. González-Méijome

Abstract

"Purpose: To report the visual and symptomatology outcomes of subjects wearing scleral contact lenses (ScCL) up to 6 months and assess the learning curve from the wearer point of view in handling these devices.

Methods: Prospective dispensing case series involving 125 eyes of 69 subjects fitted with ScCL (Procornea, Eerbeek). Evaluations were performed at Baseline, with habitual correction (HC) and best spectacle correction (BSC); at lens dispensing visit; and at 1, 3 and 6 months of follow-up. High and Low Contrast Visual Acuity (HCVA and LCVA) were measured with ETDRS in LogMAR scale. The symptoms were assessed with Ocular Surface Disease Index (OSDI) questionnaire.

Results: Both HCVA and LCVA improved after ScCL application when compared to HC and BSC (<0.001). OSDI scores also showed a statistical significant improvement with ScCL compared to the symptoms reported at baseline with HC (<0.001). AV and OSDI score remained stable over the 6 months period. There was an increase in the number of hours per day and days per week of ScCL wear and a decrease in the number of attempts to correctly apply and remove the lenses during the follow-up time (<0.05).

Conclusions: Beyond the marked improvement in HCVA and LCVA, ScCL have also demonstrated to significantly reduce the ocular surface related symptoms, in a constant manner over 6-month follow-up period. It is expected that the vast majority of the subjects could be able to correctly handle ScCL in the short term, but there still is a learning process over time."

Free Paper

#006

Objective measurement of astigmatism induced by decentration of a bifocal contact lens

António Miranda; Ana Amorim-de-Sousa; Rute Macedo-de-Araújo; Sofia C. Peixoto-de-Matos; José Manuel González Méijome

Abstract

"Purpose: The purpose of this experiment is to evaluate the effect of lens decentration on the optical performance and induced astigmatism measured with objective methods.

Methods: A bifocal contact lens used for myopia control with constant power of -0.50D and +2.00D of treatment power was fitted to 6 eyes (28±5 years of age) in this pilot study. Decentration of the CL was measured with the Medmont E300 corneal topographer, aberrometry was measured with the IRx3 Shack-Hartmann aberrometer for 5 and 3 mm of pupil size, and autorefraction was measured with the Grand-Seiko WAM5500. The residual refraction was compensated on a Badal optometer adapted to the autorefractometer or the internal optics of the aberrometer. All measures were performed without and with the contact lens.

Results: Ocular astigmatism measured without lenses was -0.50±0.21D (range: -0.10 to -1.31D). On average the lenses decentered by 0.54±0.29mm from the pupillary center (range: 0.25 to 1.0 mm); in all eyes, lenses decentered in the temporal or temporal-superior direction. Ocular astigmatism measured with lenses was -1.39±0.17D (range: -1.02 to -1.89D). Interestingly, all with-the-rule astigmatic eyes changed to against-the-rule with the contact lens in place, what is expected from the predominantly horizontal decentration of the optic zone of the lens.

Conclusion: Corneal topography over the bifocal soft contact lens allows to objectively estimate the decentration with respect to the pupil center. Decentration induces changes in optical performance and increase astigmatism measured with aberrometry for 5 and 3 mm and with autorefractometer."

Free Paper

#007

Influence of physical activity on visual skills in soccer players

Carlos Baptista; Jorge Jorge;

Abstract

Purpose: Evaluate the difference of physical activity in the visual system of football players. Verify the existence of considerable changes in the atheletes visual habilities after the sportive training.

Methods: Were evaluated 22 football players, aged between 19 and 34 years (mean 24,7 ± 3,98 years). Was measured the objetive refraction with the autorefractometer (Shin-Nippon), phorias in near vision (cover teste and thorington test), the stereopsis in near vision (titmus stereo test), the accommodative flexibility (flippers ± 2.00) and the reaction time (sports vision reaction time) before and after the sportive training.

Results: It was found, after the sportive training, a slightly hyperopic tendency (equivalente spherical - M) (0,66 ± 0,42) (p=0,419). In binocular vision, was registed a mean deviation in the way of endophoria (0,14 ± 0,48) (p=0,180), although in this two cases the diferences are not statistically significative. It was verified an improvement in stereopsis value (-2,81 ± 59,24 arcsec) and an improvement in the number of cycles in the accommodative flexibility (0,43 ± 0,60) (p=0,007). Regarding the reaction time were only found statistically significatuve diferences for the sensorial reaction time (-0,022 ± 0,034) (p=0,009).

Conclusions: It was verified a tendecy for the improvement of some visual habilities after the sportive training, such as stereopsis, accommodative flexibility and sensorial reaction time.

Posters

Poster

#001

Accommodative spasm treated with visual therapy and soft contact lenses

Anahí Gonzalez Bergaz, Alejandro Martínez, Águila, Begoña Fonseca, Alba Martín Gil

Abstract

"Patient with accommodative spasm referred by the ophthalmologist for visual therapy. She has 27-year-old and has been on treatment with atropine. Does not tolerate all the graduation obtained under cycloplegia, so she has to be undercorrected. She tried to wear soft contact lenses (SCL), without success.

A complete visual examination was performed, including retinoscopy on his goggle with Wellch Allyn retinoscope, visual acuity with Pascal 3D screen, near point of convergence (NPC) with accommodative stimulus and with red filter, Worth flashlight, cover test and Butterfly stereopsis test.

In addition, accommodative delay, PRA and NRA, accommodative amplitude (AA) by distance and prism bar vergences were measured.

The diagnosis was an accommodative spasm with RE refraction: +2.75 -1.50 169º (0.4 VA) and LE: +1.50 -1.00 17º (0.63 VA), binocular 0.8 VA. Near VA with correction was 0.4 RE and 0.5 LE, reaching 1.0 with BE.

From the data obtained in the visual examination, adaptation of monthly SCL was tried with a program of ten sessions of visual therapy (VT) to train accommodation.

After satisfactory adaptation of the monthly SCL and VT sessions, the results improved as follows: VA increased to 0.8 for LE and 0.5 for LE, being 1.0 in binocular; Stereopsis enhanced from 100'' to 25'' and the vergences and AA amplified to 8cm in BE.

For accommodative problems, a good adaptation of contact lenses makes visual therapy easier and more effective, reducing the number of sessions required."

Poster

#002

Analysis of the difference between the results of three visual therapy anaglyphs in young healthy subjects

Hugo Pena-Verdeal, Rosa Calo-Santiago, Eva Yebra-Pimentel, Maria J. Giraldez

Abstract

"Purpose: Anaglyphs are visual therapy material based on red/green targets that utilize red/green glasses to present similar but slightly different images to each eye. They are used to practice image fusion and improvement of convergence and divergence skills (base-out and base-in vergence respectively). The aim of this study was to compare the results of three different anaglyphs on a group of young healthy subjects.

Material and methods: 38 young subjects were recruited among students attending to the Optometry Clinic of the Optometry Faculty (USC, Spain). All of them have a good general health and were free of any accommodative or binocular problems. Following manufacturer's instructions, the subjects performed always in the same order a sequence of three different calibrated anaglyph: one Variable Anaglyph based on circles, one Variable Anaglyph based on draws, and one Anaglyph with Fixed Demand. In all cases, subjects were asked to indicate the maximum value was the image fusion was a loss, both base-out, and base-in. Results were indicated in prismatic dioptres. Differences between results were compared.

Results: No statistical difference was found on both base-out and base-in measurements between the two Variable Anaglyphs (paired t-test: all ≥ 0.387). On the other hand, a statistical difference on both base-out and base-in measurements was found between the Fixed Demand and the two Variable Anaglyphs (paired t-test: all ≤ 0.006).

Conclusion: While there is a close relationship between the performance of draw and circle based Variable Anaglyphs, there is no relationship between Variable and Fixed Demand Anaglyphs."

Poster

#003

Anterior corneal curvature and aberration after scleral lens wear in keratoconus patients

Maria Serramito Blanco, Carlos Carpena Torres, Jesus Carballo, David Piñero, Gonzalo Carracedo.

Abstract

"Purpose: To evaluate changes in the anterior corneal curvature and the aberrometric parameters after scleral contact lens wear in keratoconus patients with and without intrastromal corneal ring segments (ICRS) implanted.

Methods: Twenty-six patients keratoconus (36.95±8.95 years) voluntarily participated in the study. The sample was divided into two groups: patients with intrastromal corneal ring segments (ICRS group) and patients without ICRS, (KC group). The patients were instructed to wear a scleral lens for eight hours. Topographic and aberrometric parameters were evaluated before lens wear and immediately after lens removal. Anterior corneal curvature was evaluated at 2, 4, 6 and 8 mm of corneal diameter and at 0º, 45º, 90º, 135º, 180º, 225º, 270º and 315º meridians, and corneal aberrations were measured for 4, 6 and 8 mm of pupil. Mean eccentricity was measured in nasal, temporal, superior and inferior quadrants.

Results: In KC group, there was a statistically significant flattening in corneal curvature at central cornea, from 6.98 mm to 7.09 mm ($p<0.05$) No changes were found in the central corneal curvature in the ICRS group. The KC group showed anterior corneal curvature flattening mainly in the nasal quadrant, being significant at 2 and 4 mm of diameter in 0º meridian, at 2 and 6 mm in 45º meridian, and at 2, 4 and 8 mm in 90º meridian. However, the ICRS group, the flattening was mainly present in the inferior hemisphere, being significant at 6 and 8 mm of diameter in 180º meridian, at 2, 4 and 6 mm in 225º meridian, at 2 and 8 mm in 270º meridian and for all diameters at 315º meridian. Regarding high order aberrations, only Z12 for 6-mm pupil increased significantly (from -0.043 ± 0.638 µm to 0.147 ± 0.888 µm; $p<0.05$). In ICRS group, the changes were significant for High Order RMS for 4 mm (from 1.115 ± 0.385 µm to 1.040 ± 0.405 µm; $p<0.05$) and 6 mm (from 2.855 ± 0.636 µm to 2.596 ± 0.752 m; $p<0.05$), and for Z3 for 4 mm and 6 mm, and for Z7 for 4-mm pupil ($p<0.05$).

Conclusion: Short-term scleral lens wear showed flattening of the anterior corneal surface in keratoconus patients. In addition, the flattening seems to affect to opposite corneal regions, superiorly in keratoconus patients with ICRS and inferiorly in subjects without ICRS."

Poster

#004

Applications of real-time measurement of ocular aberrations

Jessica Gomes and Sandra Franco

Abstract

"Aberrometry is one of the techniques available for the measurement of the optical quality of the eye. It has been applied clinically and shown to be an important evaluation tool.

Here a new methodology to assess how the aberrations change with the accommodative eye is presented. This methodology permits in-vivo and in real-time accommodative stimulation and simultaneous acquisition of the variations of ocular aberrations. A system with several negative lenses that stimulate the ocular accommodation, coupled with a wavefront sensor by using a Shark-Hartmann sensor, was developed. These two systems are synchronized, allowing the detection of the ocular aberrations while the eye is under the influence of the accommodative stimulus.

Algorithms to calculate some accommodative parameters were developed, thus enabling to obtain detailed information about the ocular accommodation behavior under different viewing conditions. Through these, it is possible obtain in real-time, the accommodative response and lag, its frequency and the time of the response of the ocular accommodation and its relaxation.

This methodology was applied in real cases, focusing on the applications to symptomatic patients who do not present changes in the regular optometric exams in use in the optometric clinical practice, but are detected by applying this methodology.

Results showed that the real-time measurement of the ocular aberrations has several applications, for example for studying the variations of the optical proprieties of the eye to have a better and comprehensive knowledge of the eye and in helping in the clinical diagnosis of patients with accommodative dysfunctions and posterior follow-up."

Poster

#005

AUTOREFRACTION Visionix L67: A clinical approach

João Senra, António Queirós

Abstract

"Purpose: This study aimed to compare the refraction values obtained by 3 different techniques (objective and subjective).

Material and Methods: A total of 250 eyes (125 patients, 77 female) aged between 9 and 80 years were analyzed, with an average of 41.6 ± 15.5 years. The refraction values were obtained with 3 different techniques: the refraction with the retinoscopy values ??and the subjective refractive value with the Visionix L67 ARK auto refractor / keratometer instrument (Auto Refractor y Keratometer, Visionix, USA). These measures were carried out without the use of cycloplegia.

Results: In the 250 analyzed eyes the values of sphere varied from +7.00 to -12.00D and the mean keratometry was 7.83x91 / 7.70x1. The refraction in the three techniques, for the spherical equivalent, was on average M = -0.17 ± 2.34D obtained with ARK, M = -0.30 ± 2.11D for retinoscopy and M = -0, 39 ± 2.06D for subjective refraction. No statistically significant differences were found between the three measurements (p = 0.092, Kruskal-Wallis test). Peer-to-peer analysis showed statistically significant differences between them (maximum difference of 0.21 ± 0.64D, p <0.001, Wilcoxon test).

CONCLUSIONS: Although the measures with ARK Visionix L67 show differences for the techniques usually used in clinical optometry consultation, these are inferior to the clinical relevance, so the instrument can be used as the first approach in terms of refraction."

Poster

#006

Qualitative evaluation of dry eye in smokers

Ana Rita Sebastião, Ana Rita Martins, Amélia Nunes

Abstract

"Tobacco smoke may cause changes in the tear film and consequently complaints related to dry eye. To help finding the possibility to develop pathologies and risk symptoms in smokers, the quantification YPU (Year Packet Units) is an important tool. This study aims to evaluate the presence/intensity of symptoms associated with dry eye in smokers compared with non-smokers. It also aims to analyze whether smokers with more complaints have a higher YPU index.

A total of 148 smokers (32±10 years) and 204 non-smokers (29±11 years) participated in this study. The evaluation of dry eye symptoms was performed by applying the Portuguese version of Dry Eye Questionnaire (DEQ) in optometry appointments (Guarda), ophthalmology (Setúbal) and online format (Google Forms). A comparison between symptoms of both groups was performed through the score obtained in the questionnaire.

The group of smokers reported a higher frequency of lacrimation and dryness of the nose, mouth or vagina compared to the non-smokers group (statistically significant difference: T-test, p-value 0.004 and 0.0002 respectively). There was a significant positive weak correlation between the YPU index and the increase in complaints for all questions (Pearson's correlation, $R<0,5$; $p<0,05$).

Both groups had dry eye symptoms, probably due to extrinsic factors other than tobacco. The most frequently reported symptoms among smokers were lacrimation and dry mouth / nose / vagina sensation. Despite the weak correlation between YPU and increased complaints, it was found that smokers with higher YPU reported greater intensity of complaints in previous issues. However, further studies are important."

Poster

#007

Biometria ocular e Tomografia de Coerência Ótica em Anisométropes

Elisa Marçal, Paula Silva; Francisco Ferreira, Pedro Monteiro, Amélia Nunes

Abstract

"Objective: To compare the axial length of the ocular components (total axial length, anterior segment depth, lens thickness, vitreous body depth and retinal thickness) between the smallest refractive power eye and the highest refractive power eye in subjects with anisometropia.

METHODS: 18 subjects with anisometropia, aged between 13 and 64 years (mean age 34,208 ± 3,832) were analyzed. The mean difference in spherical equivalent between the two eyes was -2.028 ± 1.873. The macular thickness of the retina was evaluated using Spectralis Optical Coherence Tomography and the axial length of the different ocular structures were acquired through the LENSTAR LS900 Biometer.

Results: The thickness of the Crystalline and the Anterior Chamber did not reveal differences that justify the refractive difference. For the other ocular components, Biometry showed a positive correlation between Vitreous Length and Axial Length. No significant differences were observed in the macular thickness between the more ametropic eye and the less ametropic eye. However, a significant negative correlation was found between axial length and pericentral macular thickness between the two eyes.

Conclusion: The data of this study show that the eyes with greater power present greater axial length. It was also found that the increase of the depth of the vitreous body contributes most to increase the axial length of the most powerful eye, which corroborates the findings of other authors (1). In this study, we find a negative correlation between the increase in axial length and the thinnig of the macular thickness in the pericentral zone."

Poster

#008

Carga de doença por Erros de Refração nas crianças na Colômbia entre o 2009 ao 2014.

Yenifer Zuley Cañón Cárdenas

Abstract

"É importante ter evidências na hora da tomada das decisões em termos de saúde, mas sobretudo em relação à saúde visual, uma vez que é uma área onde não é possível visibilizar claramente, o que torna necessário gerar estudos que sirvam de base para a toma de decisões na saúde visual do país e por que não, servem de base para novos estudos em outros lugares.

Vale ressaltar que, apesar de ter estudos soube carga da doença no país, não há estudo claro que evidencia a carga de doença de erros de refração em crianças em idade escolar, desde os anos de vida ajustados por incapacidade (DALYs ou DALY é o acrônimo em inglês), é por isso que surge a necessidade de desenvolvê-lo, uma vez que os erros refractivos são considerados como causa de cegueira e baixa visão no mundo.

OBJETIVO:
Estimar a carga de doença por Erros de Refração nas crianças na Colômbia entre o 2009 ao 2014.

MÉTODOS:
Estudo ecológico. Dados sobre a incidência e mortalidade de tuberculose foram coletados dos dados específicos do Ministério da Saúde da Colômbia. A carga de doença por Erros de Refração baseou-se no cálculo de disability-adjusted life years (DALYs, anos de vida perdidos ajustados por incapacidade). Os DALYs foram estimados pela soma de years of life lost (YLLs, anos de vida perdidos) e years lived with disability (YLDs, anos vividos com incapacidade). Os valores absolutos foram transformados em taxas por 1000 habitantes. As taxas foram calculadas por sexo, faixa etária e localização geográfica.

Palavras-Chave: Erros de Refração; Efeitos psicossociais da doença; anos de vida perdidos ajustados por incapacidade"

Poster

#009

Characterization of corneal high-order aberrations in keratoconus of different phenotypes

Carlos Carpena Torres, María Serramito Blanco, Cristina Pastrana Robles, Jesús Carballo Álvarez, Gonzalo Carracedo Rodríguez

Abstract

"Purpose: To analyze the anterior, posterior and total corneal high-order aberrations in keratoconus of different phenotypes.

Methods: A retrospective and cross-sectional study was made. Fourty eyes diagnosed with keratoconus were classified in five phenotypes. The phenotypes were established based on different parameters of the corneal topography such as location of the apex (central or peripheral), asphericity (low or high) and orientation of the anterior astigmatism and coma aberration. The analysis of the anterior, posterior and total corneal high-order aberrations was considered from fourth to fifth order, choosing a pupil size of 6 mm. The Pentacam rotating Scheimpflug camera was used to perform all the measurements. A statistical significance of 95% ($P<0.05$) was established.

Results: In relation to anterior, posterior and total root mean square (RMS), only the values of central keratoconus with low asphericity were statistically lower than the other phenotypes ($P<0.05$). In relation to anterior and total vertical coma (Z7), higher negative values in peripheral keratoconus were found ($P<0.05$). In central keratoconus, Z7 values seem to be directly proportional to its asphericity ($P<0.05$). In relation to anterior spherical aberration (Z12), higher values in central keratoconus were found and they seem to be directly proportional to its asphericity ($P<0.05$). Differences in anterior and total oblique trefoil (Z6) between peripheral keratoconus were also found ($P<0.05$).

Conclusions: Central keratoconus with low asphericity seem to be the phenotype with better optical quality. Pheripheral keratoconus would have higher levels of vertical coma affecting to its optical quality."

Poster

#010

Comparação da medição da PIO em usuários de lentes de contacto com o Icare, ICare 100 e o Pulsair

Ana Rita Rosmaninho Silva Pereira, José Alberto Diaz Rey, António Queirós

Abstract

"Objetivo: Pretendeu-se com este estudo avaliar o efeito do uso das LC na medição da PIO em usuários de lentes de contacto com diferentes ametropias ao longo de um mês.

Métodos: Foram analisados os valores da queratometria num Autorrefratómetro/ Keratometro-PRK 6000 Potec e da PIO com os tonómetros ICARE, Icare 100 e Pulsair em 102 olhos. Foi realizado um estudo longitudinal da variação da PIO, no início e após 30,84±2,73 dias em dois grupos (usuários de LC e não usuários). Todos os pacientes selecionados não tinham antecedentes diretos de cegueira súbita, glaucoma ou hipertensão ocular (HTA) bem como patologias na córnea e astigmatismos superiores a 2,50D.

Resultados: A diferença do valor médio da PIO obtida com cada um dos equipamentos foi estatisticamente significativa, sendo que, na amostra estudada, o Pulsair subestima o Icare em 1,70±2,22 mmHg ($p<0,001$). O Icare100 subestima em todas as medições da PIO o seu antecessor Icare, no entanto, esta diferença é sempre inferior a 1mmHg o que não tem relevância na prática clínica diária. Foram verificadas diferenças estatisticamente significativas no valor da PIO em alterações mínimas de Qmed. Não foram verificadas diferenças estatisticamente significativas no valor da PIO entre usuários de LC e o grupo controle, embora, as diferenças de valores sugerem que eventualmente as lentes de contacto possam mascaram o valor em usuários.

Conclusão: Na avaliação da medida da PIO obteremos valores diferentes da mesma em função do instrumento de medida usado. Na população em estudo não foram encontradas diferenças entre usuários de LC em função do tipo de ametropia e tipo de LC."

Poster

#011

Comparative study between Mohindra Retinoscopy and Subjective Refraction in young adults with accommodative excess.

Cátia Almeida, Andresa Fernandes, Amélia Fernandes Nunes

Abstract

"Aim
To compare the results of three refractive techniques: Autorefractor (AR), Mohindra retinoscopy (RM) and subjective test, in young adults, and investigate if there are differences between the two objective and the subjective techniques, in subjects with accommodative excess.

Methods
The refractive measurements were taken with the open field AR (Grand Seiko WAM-5500), the monocular subjective refraction and RM. Measures of accommodative flexibility and MEM were also taken. Subjects with tropia, amblyopia and medication that would interfere with accommodation were excluded. All the measurements were done on the right eye only. The final sample had 94 volunteers (22,54 ± 3,51 years), 63% with normal accommodation and 37% with accommodative excess.

Results
Statistically significant differences were found between the three tecnhiques on the all sample, with Friedman test (N=94; X_F^2=52,578; P=0,0001) and the multiple mean comparison. The RM is the techique that provide more positive results and the AR the most negative. Data were also analyzed based on accommodation function and there were no statistically significant differences found between subjects with accommodative excess and subjects with normal accommodation.

Conclusion
These results revealed significant differences between the three refractive techniques in yound adults, independently of accommodative state. The open field AR tends to overestimate some degree of accommodation during the refractive measurements and the RM is the technique that presents more positive results, even in subjects with normal accommodative function."

Poster

#012

Comparative study of optical quality with different contact lens designs

Catarina Martins, Carolina Vieira, Ana Amorim-de-Sousa, Rute Macedo-de-Araújo, Jaume Pauné, José M González-Méijome, António Queirós

Abstract

"Purpose: This study reports the aberrometric data obtained in the naked eye of myopic patients and for 3 different spherical soft contact lens materials named as PLD amiopik2 (Lens 1), AMIOPIK_25 (Lens 2) and AMIOPIK_3 (Lens 3). The primary goal was to evaluate the optical quality and visual performance with the Test contact lenses (Lens 1, 2 and 3) compared with a monofocal contact lens (Control). A secondary purpose was to evaluate the comfort reported with each lens.

Methods: This is a non-dispensing cross-over, double blind study where 18 eyes of myopic subjects worn 3 test lenses and 1 control lens in random order. Subjects had an age of eighteen eyes of 18 patients with age 21.78 ± 2.51 [18 to 29] (years) and mean spherical equivalent refraction M=-2.57±1.77 [-0.50 to -5.50] (D) with refractive astigmatism below -1.00D. Optical quality was evaluated with the higher order aberrations (HOA) for 5 and 3 mm pupil with a Hartman-Shack aberrometer (IRx3, ImaginEyes, France) and glare formation was evaluated with the Light Disturbance Analyzer (LDA). Visual performance was evaluated with a Contrast Sensitivity (CSF) chart at 2 meters and an ETDRS chart at 4 meters (Precision Vision, IL, USA). Comfort was assessed with a visual analogue scale after 30 to 45 minutes of contact lens wear. SPSS v 24.0 was used for statistical analysis. Visual acuity and CSF measurements have been recorded under monocular conditions.

Results: All individual terms of HOA (higher-order aberrations) and total RMS from 3rd to 8th order increased significantly with the 3 Test lenses compared to Control. Between the Test lenses, Lens 1 induced significantly higher HOA compared with Lens 2 and 3. Halo size was also significantly higher with Lens 1 compared with control but all lenses showed similar values of halo size under the test conditions. Visual acuity under high contrast conditions was similar for all lenses. Under low contrast, Lens 1 and Lens 2 performed significantly worse than Control (Bonferroni post-hoc correction, $p<0.001$). CSF was below normal limits for 3 and 6 cpd spatial frequency but was not significantly different between Test lenses and Control. Comfort was significantly worse and below clinically acceptable values (<6 in 10) for Lens 1.

Conclusion: The 3 new lens design tested presented a very good distance high contrast visual acuity and contrast sensitivity function similar to monofocal Control. Under low contrast condition, Lens 1 and Lens 2 performed significantly worse. Lens 3 is the one with the best distance vision performance under high and low contrast conditions."

Poster

#013

Comparative study of peripheral refraction with different contact lens designs

Carolina Vieira, Catarina Martins, Ana Amorim-de-Sousa, Rute Macedo-de-Araújo, Jaume Pauné, António Queirós, José M González-Méijome

Abstract

"Purpose: This study reports the peripheral refraction data obtained in the naked eye of myopic patients and for 3 different spherical soft contact lens materials named as PLD amiopik2 (Lens 1), AMIOPIK_25 (Lens 2) and AMIOPIK_3 (Lens 3). The goal was to evaluate the changes in relative peripheral refraction with the Test contact lenses (Lens 1, 2 and 3) compared with a monofocal contact lens (Control).

Methods: This is a non-dispensing cross-over, double blind study where 18 eyes of myopic subjects worn 3 test lenses and 1 control lens in random order. Subjects had an age of eighteen eyes of 18 patients with age 21.78 ± 2.51 [18 to 29] (years) and mean spherical equivalent refraction M=-2.57±1.77 [-0.50 to -5.50] (D) with refractive astigmatism below -1.00D. Peripheral refraction was collected with an open-field autorrefractometer (WAM5500, Grand Seiko, Japan).

Results: The difference between the central refraction and the peripheral refraction at eccentricities of 10º, 20º and 30º in the nasal and temporal retinal area was considered the outcome measure of relative peripheral refractive error (RPRE) and compared between each test lens and control lens. All lenses changed peripheral refraction in the temporal retina at 20 and 30º of eccentricity compared with the Control. All lenses demonstrated the ability to change the off-axis refraction beyond the 20º of eccentricity in the myopic direction (myopic defocus), with the Lens 1 inducing the stronger changes, particularly in the temporal retina (nasal visual field).

Conclusion: The lenses evaluated were successful to induce relative peripheral myopic defocus for a wide range of central myopic refractive errors. Lens 3 is the one with the best performance in terms of peripheral myopic defocus in the temporal retinal field."

Poster

#014

Comparison of keratometry results between two topographers and one autorefractor-keratometer

Silvia Garcia-Montero, Dolores Ferreiro, Eva Punín Dorrio, Maria J. Giraldez, Eva Yebra-Pimentel

Abstract

"Purpose: The aim of the present study was to compare the keratometry results between three commercially available devices, the Nidek ARK-510A autorefractor-keratometer, the Oculus Easygraph topographer and the EyeSys topographer.

Material and methods: A total of 49 patients of mean age 23 ± 5.9 years were recruited among subjects attending the Optometry Clinic of the Optometry Faculty (USC, Spain) for an eye examination. Subjects were excluded if they had no good general and ocular health or wore contact lenses. Corneal radius was measured in all subjects with the Nidek ARK-510A autorefractor-keratometer, Oculus Easygraph and the EyeSys topographers. Measurements were performed always in the same order by two expert optometrists who were not aware of the results of the other device following manufacturer's instructions. Measurements were performed three times on each device and the data were averaged.

Results: There was a statistically difference in the measurements of the two main corneal radii between the three devices (paired-ANOVA: both steeper radius and flatter radius, $p < 0.001$). Pairwise comparisons showed that this difference was only true when comparing EyeSys topographer with the remaining devices (Bonferroni test: both comparisons for steeper and flatter radius, $p < 0.001$), whereas Nidek ARK-510A autorefractor-keratometer and Oculus topographer did not show any difference between them (Bonferroni test, steeper radius $p = 1.00$ and flatter radius, $p = 0.76$). Bland and Altmann analysis also were performed.

Conclusion: Oculus Easygraph topographer and Nidek ARK-510A autorefractor showed similar keratometric values, whereas EyeSys obtained different keratometric values than the remaining devices."

Poster

#015

Correlation analysis between tear film osmolarity and area of break size

Carlos Garcia-Resua, Hugo Pena-Verdeal, Silvia Garcia-Montero, Maria J. Giraldez, Eva Yebra-Pimentel

Abstract

"Purpose: Dry eye is a common disorder with a multifactorial etiology characterized by a high osmolarity and tear film instability. The aim of this study was to analyze the relationship between tear film osmolarity and the area of tear film break-up (AB).

Methods: A total of 110 subjects were recruited among patients of the Optometry Clinic of the Optometry Faculty (USC, Spain). Previously to any test, year osmolarity was obtained using TearLab. By using a camera attached to the slit-lamp and before the instillation of 2-µl of non-preserved 2% sodium fluorescein, three videos of the tear film were recorded after instructing the subject to blink. From each video, 4 frames were extracted: one frame on the first or initial tear film break-up (AB-0), one frame 1 second after the break-up (AB-1), one frame 2 seconds after the break-up (AB-2) and finally one frame just before the next reflex blink (AB-F). In each extracted frame, AB was determined by using ImageJ. Correlations between osmolarity and ABs were calculated.

Results: Correlations between osmolarity and all AB parameters were significant (all $p \leq 0.015$) and showed a positive trend (Spearman ρ: AB-0, $r = 0.206$; AB-1, $r = 0.324$; AB-2, $r = 0.511$; AB-F, $r = 0.549$): higher osmolarity values were related with higher AB areas.

Conclusions: There is a close relationship between osmolarity and the area of tear film break: subjects who showed high tear film osmolarity had “high” break-up areas (poor stability)."

Poster

#016

Diferença na prevalência de tuberculose ocular de acordo com variáveis sociodemográficas na Colômbia

Yenifer Zuley Cañón Cárdenas

Abstract

"Difference in the prevalence of ocular tuberculosis according to sociodemographic variables in Colombia

Tuberculosis (TB) is an infectious disease that occurs more in patients in overcrowded and vulnerable conditions, as well as in people with HIV. In addition, it is characterized by being of the intra-pulmonary and extrapulmonary type, in the latter it can affect organs, such as the eye and its annexes.

In the case of ocular tuberculosis, it can be divided in two types: primary and secondary. In the primary, are those cases in which the eye is the entrance area of the micro-bacterium, but no evidence of systemic infection is found, being quite unusual. The secondary form is defined as an infection resulting from contiguous dissemination of an adjacent structure or by hematogenous dissemination, for example, of the lung, which is the most common. However, the intraocular manifestations of TB are usually associated with systemic infection.

If a developing country such as Colombia is not aware of the effect of unusual eye diseases generated by diseases with an impact on health, such as TB, and does not redirect its guidelines in keeping them in mind when screening patients, it could ignore a large number of cases of ocular TB, increasing the burden due to visual impairment.

Aim: To determine if there is a difference in the prevalence of ocular tuberculosis by age, sex and location in Colombia.

Methods: A descriptive study of ecological type is carried out, uni-varied and bivariate analyzes are carried out. For the case of establishing the difference of proportions, it is done with the student t test."

Poster

#017

Differences in the measurements of the eccentricity between two commercially available topographers

Dolores Ferreiro, Silvia Garcia-Montero, Rosa Calo-Santiago, Eva Yebra-Pimentel, Maria J. Giraldez

Abstract

"Purpose: The shape factor of the cornea can be described in terms of eccentricity (e); Eccentricity values are based on the mathematical description of an ellipse where 0.00 represents a circle with no flattening and 1.00 represents the maximum flattening in the periphery. The purpose of the present study was to compare the eccentricity values provided by two commercially available osmometers, the Oculus Easygraph and the EyeSys.

Material and methods: A total of 49 patients of mean age 23 ± 5.9 years were recruited among subjects attending the Optometry Clinic of the Optometry Faculty (USC, Spain) for an eye examination. Subjects were excluded if they had a history of conjunctival, scleral, or corneal disease, prior eye surgery, glaucoma, diabetes mellitus, a thyroid disorder, or wore contact lenses. Eccentricity values were obtained in all subjects with the Oculus Easygraph and the EyeSys topographers. Measurements were performed always in the same order by two expert optometrists who were not aware of the results of the other device following manufacturer's instructions. Measurements were performed three times on each device and the data were averaged.

Results: There was a substantial positive correlation between the eccentric values obtained by the two topographers (Pearson Correlation: $r = 0.670$, $p < 0.001$). There was no statistical difference in the eccentricity value obtained by the two topographers (paired t-test: $p = 0.610$).

Conclusion: The present study showed that both topographers, the Oculus Easygraph and the EyeSys are perfectly interchangeable for eccentricity measurements in the daily clinic."

Poster

#018

Digital eye strain in adolescents

Cátia Mariz, Sandra Franco

Abstract

"Digital eye strain is the ocular discomfort felt after two or more hours looking at a digital display. The causes of these visual symptoms may be due to visual problems, inadequate working conditions and/or habits. Children learn to use these devices increasingly early and in adolescence, they use them either to play or to perform educational tasks.

This work aims to study the prevalence of symptomatology associated with the use of these devices in adolescents. It also intends to evaluate their knowledge on the correct form to use the devices, from a visual ergonomics approach.

A survey was designed for adolescents and to evaluate the habits of use of the type of equipment as the existence and the symptomatology associated with its use.

79 young people (63% female) with a mean age of 11.9 ± 1.8 years old answered the questionnaire. They referred to spent 0.91 ± 0.98 and 1.67 ± 1.71 hours per day at the computer or smartphone, respectively. Eighty-six percent reported having at least one of the symptoms occasionally and 30% frequently or always. The most frequent symptom was eye fatigue (57.3%) followed by back and / or neck pain (55%) and headache (47.2%).

Some of these symptoms are related to a presence of reflexes at the screen and the fact that teenagers referred to use the computer/smartphone before sleep.

With these results we intend to elaborate dissemination actions among young people in order to promote more appropriate habits of use of these devices and to prevent symptoms and visual problems."

Poster

#019

Does soft contact lens wear affect intraocular pressure and corneal biomechanical properties?

Kishor Sapkota, Sandra Franco, Madalena Lira

Abstract

"Purpose: To determine the effect of two months of soft contact lenses (SCL) wear on intraocular pressure (IOP) and corneal biomechanical properties. The role of lens materials and wearing modality was also investigated.

Methods: Goldmann-correlated intraocular pressure (IOPg), corneal-compensated intraocular pressure (IOPcc) and corneal biomechanical properties [corneal resistance factor (CRF) and corneal hysteresis (CH)] were measured by Ocular Response Analyser (ORA); corneal curvature was measured with a corneal topographer Medmont E-300 on forty-seven neophyte subjects. Subjects were fitted with a daily disposable lens (nelfilcon A or stenofilcon A or nesofilcon A) in one eye and a monthly disposable lens (lotrafilcon B or comfilcon A or balafilcon A) in the other eye in contra-lateral manner. The measurements were repeated on each monthly follow-up visit. Change in IOP, CRF, CH was determined and its relationship with lens materials, wearing modality and corneal curvature was also analyzed.

Results: IOPg, IOPcc and CRF reduced after lens wear ($p<0.001$), but there was no change in CH ($P=0.837$). Reduction in IOPg, IOPcc and CRF were positively correlated with respective baseline values ($p<0.05$). No correlation of changes in IOP and CRF was found with age of the subjects, power of the CL and lens wearing modality ($p>0.05$). The changes were associated with the lens materials ($p<0.05$) and were most significant with comfilcon A lens wear.

Conclusion: Two months of SCL wear reduced IOP and CRF in neophyte subjects. The higher the baseline values, the higher was the reduction. The reduction was directly related with lens materials.

Key words: Corneal resistance factor; corneal hysteresis; soft contact lens; Goldmann-correlated intraocular pressure; corneal-compensated intraocular pressure."

Poster

#020

Effect of Ap4A on Aquaporin-1 trafficking to plasma membrane in rabbit non-pigmented ciliary epithelial cells: Role of P2Y2 receptor in IOP raise

Alba Martin-Gil, Begoña Fonseca, Alejando Martínez-Águila, Anahí Gonzalez and Jesús Pintor

Abstract

"Purpose: To investigate the role of Ap4A acting through P2Y2 purinergic receptor in the increase aquaporin-1 (AQP1) levels and trafficking in NPE cell.

Methods: Immunocytochemical and westerns blot studies were performed in immortalized NPE. Cells were challenged with single doses of Ap4A, P2Y antagonists, siRNA against P2Y2 and signalling pathway inhibitors. Time-course of AQP1 after Ap4A application was studied. Dose-response analysis was performed by assaying the agonists at concentrations ranging from 1 nM to 1 mM. Antagonists, inhibitors and siRNA were pre-incubated before Ap4A was added, and antagonists and inhibitors were present during the dinucleotide application.

Results: The application of Ap4A in NPE cells demonstrated a gradual increase in the presence of AQP1 and its membrane trafficking, which was time and dose-dependent. The EC50 value for Ap4A was 1.75 µM when presence of AQP1 was evaluated and EC50=468.9 nM when AQP1 traslocation was studied. Ap4A produced an increase in AQP1 expression and AQP1 traslocation which had a maximal 60 min after the dinucleotide application returning to control value in another 60 min. The experiments performed with antagonist and siRNA demonstrated that Ap4A effect was mediated by activation of P2Y2 receptor. Experiments performed with signalling pathways inhibitors demonstrate that membrane trafficking of AQP1 is due to phosphorylation mediated by PKC.

Conclusion: Ap4A acting via a P2Y2 receptor can mobilize AQP1. The increase in AQP1 expression and its trafficking could explain why IOP increase when P2Y2 receptors present on the ciliary body are activated."

Poster

#021

Effect of Ap4A on retinal cells

Begoña Fonseca, Matthew Felgate, Jesús Pintor, Julie Sanderson

Abstract

"Introduction: Glaucoma a leading cause of blindness worldwide, and it is defined as an optic neuropathy in which there is a death of retinal ganglion cells and loss of their axons in the optic nerve that lead to blindness. Elevated IOP is the major risk factor for the development of glaucoma and current treatment relies on decreasing IOP. Till date some attempts have demonstrated the role of nucleotides (such as Ap4A) modulating IOP. Being a neurodegenerative pathology, the role of retinal support cells is of great interest. The aim of this study was to determine if the P2Y receptors can be activated by the Ap4A in RPE and microglial cells.

Methods: Two cell lines have been used to characterise the effects of Ap4a on retinal cells: ARPE-19 (Human RPE) and BV2 (mouse microglial cell line).

The pharmacology of Ap4a has been studied in each of these cell lines by fluorimetric (FURA-2) Ca2+ assay. A range of agonists and antagonists have been used to characterise the activity of Ap4a at P2 receptors on each cell type.

Results: Ca2+ was liberated in presence of 3mM of Ap4A in BV2 cells and of 100uM in ARPE-19 cells. P2Y2 antagonist receptor reduced significantly the release of Ca2+ in ARPE-19 cells, in presence of Ap4A

Conclusions: Ap4A was able to activate both BV2 and ARPE-19 cells, and showed to have an effect on purinergic receptors. These results indicate the possibility of studying Ap4A as an effective compound for a neuroprotective treatment of glaucoma"

Poster

#022

Estimation of dual sensory loss among people aged 80 years and over living in nursing homes

Vázquez MC, Gigirey LM, Piñeiro-Ces A, del Oro CP

Abstract

"Prevalence of dual sensory loss increases among older adults residing in nursing homes respect those non-residents, especially at advanced ages. To our knowledge there are no official data regarding the visual and hearing state of elderly people living in Galician nursing homes.

Objective: this study evaluates the presence of concurrent vision and hearing impairment (dual sensory loss) among people aged 80 years and over living in nursing homes of the city of Santiago de Compostela.

Method: a total of 364 residents underwent a visual and hearing screening. We measured monocular and binocular high contrast presenting visual acuity "PVA" (E-Snellen, 3.70 m). Visual impairment was defined as a PVA worse than 20/40 (better eye). We used liminal tonal audiometry as reference for the diagnosis of hearing loss (Ventry and Weinstein criteria). Data analysis was developed using the SPSS 24.0 program.

Results: frequency of dual sensory loss reaches 36,7% among volunteers. The percentage of subjects with DSL reaches over 80% among people with 85 years and over. Correlation was found between the values of presenting visual acuity and hearing level (Pearson r = -0.255, p = 0.011).

Conclusion: data reveals the high frequency of dual sensory loss among the residents examined. The knowledge of visual and hearing state of our residents could help professionals and caregivers to develop intervention programs to improve the quality of life of this population group."

Poster

#023

Frequency of anisometropia in children aged 5 years.

Duarte Fernandes, Rita Tuna, Ana Paula Gonçalves, Rui Calado, Amélia Fernandes Nunes

Abstract

"Anisometropia is characterized by an interocular refractive difference bigger than 1.00 diopter (D), although this value may differ from author to author. Its prevalence depends on several factors, with different values being found in different geographic areas of the world. This study intends to estimate the frequency of anisometropia in 5-year-old children in the center of Portugal (Médio Tejo).

In total 1132 children were screened in kindergartens from the 13 municipalities belonging to the Médio Tejo region, between October 2016 and May 2017. Refractive measures were obtained with the portable pediatric autorefractor, PlusOptix, under binocular conditions. The children where measurement was not possible were excluded, either due to ametropia exceeding the measurement range of the instrument or for other reasons. The final sample had 1102 children, of which 57.5% were male. Anisometropia was defined as the difference between the eyes of the spherical equivalent and / or the cylinder for any axis ≥ 1.00D.

A rate of 6.8% of anisometropia was found, being 48% boys and 52% girls. As to the environment in which the school they attend is inserted, there was a greater occurrence of anisometropia in rural schools (56%) than in urban schools.

The frequency found agrees with other similar studies. It is plausible that this number increases with age, educational level and other factors. Given that anisometropia is a risk factor for amblyopia and strabismus, early detection and appropriate intervention during the child's developmental period is critical to prevent permanent loss of binocular vision and stereopsis."

Poster

#024

Higher Order Ocular Aberrations in Diabetes Mellitus Type II Patients

Marta Magro; Clarisse Reis; Pedro Monteiro; Elsa Fonseca

Abstract

"Purpose: To assess the influence of type II Diabetes Mellitus (DM II) on retinal image quality through ocular aberrations measurements.

Methods: A case-control study where the study population had 49 patients (58±7 years) with DM II and the control population had 30 patients (55±9 years). The measurements of higher order aberrations and autorefraction on both groups were obtained using the Nidek OPD Scan III Aberrometer and Corneal Topographer.

Subsequently, the normality of the samples was analyzed with the Shapiro-Wilk test, and since it has been rejected in certain cases, the comparation between the groups was performed by means of the Mann-Whitney non-parametric test.

Results: Five higher order aberration coefficients, namely, spherical aberration, vertical and horizontal coma, vertical and oblique trefoil, and the HORMS were compared across a 4,5mm pupil. Only oblique trefoil showed a statistically significant (p=0,02) change from +0,050 µm (control) to 0,004µm (study population). Neither the remaining aberration coefficients nor the HORMS showed significant variations.

Conclusion: In a general sense, patients with DM II did not present a significant increase in high-order ocular aberrations when compared to the controls. Despite the observation of a significant deviation of trefoil from a positive normal value (in accordance to the literature) to the small negative mean value found in these patients, this may not have a relevant clinical meaning, since oblique trefoil has a smaller impact on visual quality when compared to the remaining higher order aberrations."

Poster

#025

How does contact lens design for visual terminal display affect on the ocular surface integrity?

Martínez- Alberquilla, I, Rico-del-Viejo L, Gómez-Sanz, FJ, Lorente-Velázquez A, Hernández-Verdejo JL, García-Montero, M

Abstract

"Purpose: To assess the integrity of the ocular surface during contact lens (CL) wear of CLs designed for visual display terminals (VDTs).

Methods: A total of 18 habitual CL wearers (14 men and 4 men; mean age 24.3 ± 2.3; range, 29 to 21 years) participated in the study. The CLs used in the study were soft CL of silicone hydrogel (SiHy): 17 participants were fitted with Lotrafilcon B, 16 participants with Samfilcon A and 15 with Filcom V3. Slit-lamp examination of the cornea and conjunctiva was performed under diffuse illumination using x10 - x16 magnification. After 2 minutes of instilling fluorescein dye, corneal staining was graded using the Oxford scoring scheme. Furthermore, bulbar conjunctival integrity was assessed using lissamine green and graded using the Oxford scoring scheme. Both corneal and conjunctival integrity were assessed after 8 hours (visit 1) of wearing and after 15 days of wearing at the end of the day (visit 2).

Results: CL wearers fitted with Lotrafilcon B showed a statistically significant increase in corneal staining ($p=0.027$) between visits. On the other hand, Samfilcon A showed a statistically significant increase in conjunctival staining ($p<0.05$) between visits. No statistically significant differences were found in corneal and conjunctival staining for Filcom V3 ($p>0.05$) between visits.

Conclusions: These results suggest that the material Filcom V3 preserved better the ocular surface integrity during the period of study. Ocular surface changes observed with Samfilcon A and Lotrafilcon B could limit the CL wearing time in habitual CLs wearers exposed to VDTs."

Poster

#026

How long should it be waited to evaluate soft contact lenses after its insertion?

Cristina Pastrana, Carlos Carpena, Candela Rodriguez-Pomar, Maria Serramito, Gonzalo Carracedo

Abstract

"Purpose: To evaluate in-vivo wettability, comfort, visual function and corneal aberrometry after hydrogel and silicone hydrogel contact lenses insertion for understanding what is the minimum time that the contact lens practitioner should wait to evaluate the contact lens fitting.

Methods: An experimental, prospective, short-term and randomized study was made. Twenty healthy patients (25.40 ± 2.64 years) were evaluated after the insertion of two different soft contact lenses at different times (1, 3, 5, 10, 20, 30 minutes). Ocufilcon D (hydrogel) and somofilcon A (silicone hydrogel) contact lenses were randomly assigned to both eyes of the same patient. In-vivo wettability, corneal high-order aberrations, comfort and visual function under photopic conditions in terms of high-contrast visual acuity, low-contrast visual acuity and contrast sensitivity were evaluated.

Results: A statistically significant decrease of in-vivo wettability directly proportional to time ($p < 0.05$) was found with both lenses. Also, an increase of comfort ($p < 0.001$), high-contrast visual acuity ($p < 0.05$), low-contrast visual acuity ($p > 0.05$) and contrast sensitivity ($p > 0.05$ with hydrogel, $p < 0.001$ with silicone hydrogel) directly proportional to time was found with both lenses. No clinically significant changes of corneal aberrometry were found. All the parameters, except comfort, stabilized its values 10 min after contact lenses insertion. In-vivo wettability and visual acuity statistical differences ($p < 0.05$) were found between hydrogel and silicone-hydrogel lenses.

Conclusions: It is possible to properly evaluate all the parameters studied, except comfort, 10 min after both hydrogel and silicone hydrogel contact lenses insertion."

Poster

#027

In-vivo wettability changes after tear substitutes instillation in hydrophilic contact lens users

Rodríguez- Pomar C, Pastrana C, Carpena C, Pintor J, Carracedo G

Abstract

"SIGNIFICANCE: Hydrogel contact lens surface wettability is the main factor that affect to contact lens confort. Thus, a decline in contact lens wear happens.

PURPOSE: To analyze the influence of instilation of different tear substitutes in In-vivo wettability, confort, visual function and corneal aberrometry after hidrogel and silicone hidrogel contact lens insertion.

METHODS: An experimental, prospective, short-term and randomized study was performed. Forty eyes of twenty healthy volunteers (25.25 ± 3.02 years) were analyzed before and after tear substitutes instilation. Each patient wears a hydrophilic contact lens (Ocufilcon D) in one eye and silicone-hydrogel (Somofilcon A) in the contralateral, randomized. After 15 minutes of contact lens wear for tear film stabilization, we performed measurements with the dynamic-area high speed videokeratoscopy, Medmont E300 (Medmont International Pty Ltd; Victoria, Australia) to analyze In-vivo contact lens surface wettability with TFSQ value (Tear film surface quality) and TFSQ área. We employ five different tear substitutes being: saline solution (placebo), a humectant solution based in Aloe vera and tear substitutes with different concentrations of hyaluronic acid (0.1%, 0.2%, 0,3%) Measurements at 1, 3, 5,10, 20, 30 after instillation were performed for all the solutions. VAS (Visual Analogue Scale) questionnaire was performed to evaluate subjective confort. Also, high- contrast visual acuity, low- contrast visual acuity and contrast sensitivity were monocularly measured under photopic conditions and physiological pupil diameters.

RESULTS: A significative statistical increase in In- vivo contact lens surface wettability was found after instillation for all the solutions ($p < 0.05$, Student t-test). In 0,1% hyaluronic acid humectant solution, this increase was statistical significative until 5 and 10 minutes after instillation for hydrogel contact lens and silicone-hydrogel contact lens respectively. With 0,2% hyaluronic acid humectant solution this increase remained until 10 minutes after instillation for both contact lenses. For 0,3% hyaluronic acid humectant solution the increase remained until 20 minutes (hydrogel) and 5 minutes (silicone-hydrogel) respectively after instillation. Aloe vera tear substitute remained the increase until 3 (hydrogel) and the first minute (silicone-hydrogel) after instillation respectively. A significative statistical decrease in confort was found after Visaid 0,3% instillation with silicone-hydrogel contact lens at 1, 3 and 5 minutes. An increase in confort was found with aloe vera humectant solution at 3, 5, 20, and 30 minutes for hydrogel and at 30 minutes for silicone-hydrogel contact lens.

CONCLUSIONS: Hyaluronic acid concentration is directly proportional to ocular surface tear film residence time and to hydrophilic contact lens wettability.

Keywords: wettability; hydrogel; Silicone hydrogel; tear substitutes, hydrofilic contact lenses."

Poster

#028

Influence of Scleral Contact Lens on the Electrophysiological Response of the Retina: A Pilot Study.

Amorim-de-Sousa A, Macedo-de-Araújo R, Amorim A, Queirós A, Fernandes P, González-Méijome JM.

Abstract

"Purpose: The changes produced by ocular diseases on the functional retinal response have been investigated. Scleral contact lens (ScCL) improve the visual quality of eyes with corneal abnormalities. We aimed to evaluate the influence of a ScCL in the electrophysiological response of the retina.

Methods: The retinal electrophysiological response from 5 healthy right eyes (32.6±9.7years; 3 female) near emmetropia was measured with the RETIport/scan 21 (Roland Consult, Germany). The multifocal electroretinogram test (mfERG) with a 103 black and white hexagons pattern was recorded with a DTL electrode in the right eye (left eye occluded) and pupil dilation (two drops of tropicamide), with no lens and a ScCL. A mini ScCL (Ø=16.40mm) from Procornea Med+ (Eerbeek, Holand) with r0=8.20mm, sagittal depth=4673µm, and spherical power=0.00D was used.

Results: The mfERG measurements were compared for the total response and for 6 Rings with different retinal eccentricity (Ring 1 - foveal area; Ring 6 - ~60º). Overall, the peak times and amplitudes of N1 and P1 wave peaks of the total mfERG response and of all Rings did not significantly change with ScCL use ($p>0.070$, Wilcoxon test). The peak time of N1 was higher with the ScCL (26.75±5.36ms) than with no lens (23.01±4.64ms) in Ring 1 but with a non-statistically significant trend ($p=0.404$, Wilcoxon test).

Conclusion: The material of ScCL do not affect the evaluation of mfERG response. This result has implications for future applications of mfERG strategy to investigate the evaluation of the retinal function in patients with corneal abnormalities and poor vision."

Poster

#029

Influence of Vision Therapy on Quality of Life

Ana Rita Martins, Amélia Nunes, Arminda Jorge

Abstract

"Optometry has highlighted the importance of visual therapy (VT) and its efficacy, however there are still few studies about its impact on quality of life. Since visual dysfunctions and associated symptoms may influence children's performance in school and their quality of life, this study used the COVD-QOL questionnaire (portuguese version IEV) for evaluation in pre- and post- VT, allowing quantification of quality of life changes resulting from VT.

Participated 10 children: 6 with learning difficulties in reading (LDR) (mean age 9±0,5) followed in the pediatric service of Hospital Pêro da Covilhã, and 4 without LDR (mean age 14±3) followed in CCECV (UBI) and Centro Oftalmológico do Sul (Setúbal). An optometric evaluation was performed with application of the IEV questionnaire at the beginning and the end of the VT plan.

There was a decrease in visual symptoms post-VT in all children. The difference between the mean score pre- and post- VT plan (N = 10) was statistically significant (Wilcoxon, p-value 0,005). There were no statistically significant differences between the groups (with and without LDR) in the total score pre- and post- VT (Mann-Whitney p-value 0,17 and 0,45).

VT contributed to an improvement in the visual function of all children with repercussion in their quality of life, given the significant decrease of symptoms reported at the end of the VT plan. Thus, it's important to apply the IEV in pre- and post-VT evaluation, since it allows to objectively and effectively demonstrate the changes in quality of life resulting from TV."

Poster

#030

Inter-week comparison of the meibomian lipid secretion in a group of healthy subjects

Jacobo Garcia-Queiruga, Hugo Pena-Verdeal, Carlos Garcia-Resua, Maria J. Giraldez, Eva Yebra-Pimentel

Abstract

"Purpose: The lipid layer of the tears, derived primarily from the meibomian glands, is an important determinant of the tear physiology. If the lipid layer becomes destabilized can break down quickly, creating dry spots on the ocular surface. In addition, the possibility of time variations in meibomian lipid production should be taken into account by the clinician in order to make a right diagnosis. The aim of the present study was to examine the clinical variation in the meibomium lipid secretion (Meibometry) during a week in a group of healthy subjects.

Methods: A total of 34 healthy subjects were recruited among students attending to the Optometry Clinic of the Optometry Faculty (USC, Spain). Meibomium lipid secretion was determined by using the Meibometer MB550 under controlled environmental conditions in two sessions one week apart. In each session, five curves were generated from the measurement performed on each patient. Results were obtained in Meibometer Units (MU) and curves were averaged using different criteria. Differences in Meibometry results between sessions were calculated.

Results: There was no statistical difference in meibomium lipid secretion value between the results obtained in each session for any of the averaging methods (paired t-test: all $p \geq 0.334$).

Conclusion: In healthy subjects, there is no variation in the meibomium secretion in short periods of time."

Poster

#031

Melatonin and analogues, potential supplements for glaucoma treatment

Alejandro Martínez Águila, Begoña Fonseca, Anahí González Bergaz, Alba Martín Gil, María Pérez de Lara, María Rosa Gómez Villafuertes, Jesús Pintor

Abstract

"OBJECTIVE
To determine if melatonin or analogues are able to counteract the rise in IOP in glaucomatous animals by acting on receptors whose expression may be altered because of the pathology.

MATERIAL AND METHODS
The experiments were performed on C57BL/6J and glaucomatous DBA/2J mice. The animals were subjected to controlled light/dark cycles of 12 hours to maintain stable circadian cycles and were studied from 3 to 12 months of age. The IOP measurements were made under inhalation with isoflurane and with TonoLab®. Melatonin and analogues were applied topically with a fixed volume of 2 µl. For the study of the gene expression, samples of total RNA were obtained from iris tissue and ciliary processes, collected at 3, 6, 9 and 12 months of age.

RESULTS
A decrease in the expression of melatonin receptors MT1, MT2 and GPR50 is observed with the evolution of glaucomatous pathology, preventing endogenous melatonin from counteracting the increase in IOP. Melatonin, 5-MCA-NAT and agomelatine, are able to decrease IOP largely in glaucomatous than in normotensive mice, nearly 30%. Continuous treatment with 5-MCA-NAT, with only 3 weekly applications for 3 months, counteracts the increase in IOP by 14% in glaucomatous mice. These results are consistent with those obtained in humans by Samples, when treated orally with 0.5 mg of melatonin (drop of 17%), and those from Ismail with 10 mg, where a 20% reduction was achieved.

CONCLUSIONS
These melatoninergic compounds can be used as supplements for glaucoma treatment, given their ability to lower IOP."

Poster

#032

New technologies and visual behavior in adolescence and young adults

Andresa Fernandes, Cátia Almeida, Ana Rita Tuna, Amélia Fernandes Nunes

Abstract

"Introduction / objective:
Technologies have changed lifestyles and visuo-postural problems have been associated with their excessive use. The goal is to assess the visuo-postural habits associated with the use of technological devices, in students from different school grades.

Methodology:
380 students were inquired, with ages from 10 to 30 years old. From the participants, 21,10% attended the 2nd studies cycle (2CE), 28,50% the 3rd studies cycle (3CE), 22,43% high school (Esec) and 27,97% university (Esup). Data was collected from applied questionnaires. The study of the differences in proportions were tested with the chi-squared test.

Results:
It was concluded that, in every age group, the most used technologic devices were the computer and the smartphone, with significant differences in use frequencies (p=0,000), with the computer being mostly used in the Esup and the smartphone in the 3CE. There were also differences in the number of hours of daily use (p=0,000), with the amount of time increasing along the increase in school grade. Regarding the continuous use, there were also large statistical differences (p=0,000), with 50% of 2CE students stating that they have a break from work every hour, while only 19% of Esup students do the same.

Conclusions:
There were registered unhealthy habits associated with the use of technologic devices in every school grade, with an increase in gravity that matches the increase in school grade. These behaviors can be related with the development and progression of myopia in these age groups, becoming necessary to promote visual health education."

Poster

#033

Optimization of lighting for paintings with psychophysics - influence of cultural factors

Catarina F. M. Herdeiro, João M.M. Linhares, Sérgio M.C. Nascimento, Taisei Kondo, Yukinori Misaki, Shigeki Nakauchi

Abstract

"Several psychophysical studies suggest that for occident al viewers a correlated colour temperature (CCT) of about 5000K is optimal for visual appreciation of paintings. There is not, however, general agreement in the museum community about this issue. Also, the question of whether cultural factors influence optimal lighting is relevant as they seem to influence other aspects of colour vision. The aims of this work were (1) to test a large number of paintings from occidental and Japanese painters and (2) to investigate whether the preferred lighting is influenced by cultural factors by comparing occidental and Japanese viewers. The stimuli for the experiment were images of the paintings synthetized from hyperspectral imaging. Of the 42 paintings tested 32 were from occidental painters and 10 from Japanese painters. Paintings were both of abstract and figurative nature. They were simulated illuminated by daylights with CCT in the range 3,600 K - 25,000 K. In the experiment, observers could change the CCT of the illumination using a joy-pad and their task was to select the one producing the best visual impression of the painting. Stimuli were displayed on calibrated CRT monitors controlled by a video board in 24-bits-per-pixel true-colour mode. There were 5 experimental sessions and in each session each painting was tested three times. Ten Japanese observers carried out the experiment in Japan and 11 Portuguese observers carried out the experiment in Portugal. All observers were naïve to the purpose of the experiment and both groups were tested with all 42 paintings. It was confirmed that for Portuguese observers the preferred CCT was about 5000 K. Moreover, the Japanese observers systematically required a CCT larger by about 1000 K. The data suggests that cultural factors influence the optimal lighting conditions for paintings."

Poster

#034

Ortoqueratologia antes da cirurgia LASIK: Implicações clínicas

António Queirós, César Villa Collar, Ana Amorim-de-Sousa, Beatriz Gargallo, Ramón Gutiérrez, José M González-Méijome

Abstract

"Purpose: To compare the corneal morphology and visual results of the users of hydrophilic contact lenses (control) and orthokeratology (OK) in a long term submitted to corneal refractive surgery (LASIK) for the correction of myopia.

Material and Methods: Sixteen (16) myopic patients who used hydrophilic contact lenses (SCL, n = 8 subjects) and OK (n = 8 subjects) undergoing LASIK were retrospectively analyzed. The parameters of pachymetry, volume of corneal topography, elevation of the anterior and posterior surface and aberrometry of the anterior surface of the cornea were recorded through the Pentacam instrument (Oculus, Inc. GmbH, Wetzlar, Germany) prior to the LASIK procedure and after a year of the same. Measurements were taken at the 8 mm horizontal horizontal meridian at 1 mm intervals.

Results: Age, refractive error, and topographic parameters prior to LASIK did not show statistically significant differences between the two study groups. The results after LASIK treatment showed identical changes in the control and OK groups and did not show significant differences in all parameters analyzed. Changes in corneal parameters and high order aberrations due to refractive surgery intervention were not different between Control and OK ($p > 0.073$, Mann-Whitney U test).

Conclusions: Corneal changes due to OK treatment are reversible after discontinuation. The present study provides an overview of how OK does not affect future LASIK surgery for the correction of myopia and does not influence the success / outcomes of such intervention. The results of this study may suggest that corneal biomechanics is not compromised and weakened by wear and tear with OK. Although this is a pilot study, there is a need to evaluate these results / changes in future studies with a larger number of cases."

Poster

#035

Atmospheric Disorders in Chromatic Perception of Complex Natural Scenes: Comparing Urban and Rural Scenes

Andreia Esteves Gomes, João Manuel Maciel Linhares, Sérgio Miguel Cardoso Nascimento

Abstract

"Light undergoes scattering and absorption when it passes thought the atmosphere, decreasing the visibility and chromatic diversity, effects growing with the increasing distance of observation Nevertheless, the visual chromatic information that can be recovered from images modified by the atmospheric effect is still unknown. The purpose was to measure the influence of the atmospheric effects on viewing conditions and to verify if they could be reduced by the observer

Hyperspectral images of complex natural scenes were used. For each one the colour properties were simulated assuming observational distances from -200 to 2000 meters in 50 meters steps.

The observers' task (54) was to select the desired image twofold: choose the image that looked more natural (experimence1) and choose the image that looked not natural, starting from the original image (experience2). In experience 1 the simulated distance of observation more frequently chosen was -0,90±5,39 meters. In experience 2, changes from the original image were detected with more frequency at -145,77±77,13 e 218,47±25,97 meters, for decreasing and increasing observational distance, respectively. Considering urban and rural separately, in experience 1 it was obtained -54,38±8,16 meters and 36,91±7,43 meters, and in experience 2 -196,75±10,30 and 211,26±41,65 meters and -146,74±48,17 e 203,34±10,74 meters for urban and rural scenes respectively.

The results seem to suggest that despite the damaged produced in the chromatic diversity of natural scenes with the increment of the observational distance, observers can retrieve the original chromatic information with good accuracy, but this result is not extensible equally to rural and urban scenes."

Poster

#036

Prevalência da miopia numa população portuguesa de crianças e adolescentes

Sara Ferreira, Luis Monteiro, Catarina Ribeiro, Jorge Jorge

Abstract

"Objetivo:
O objetivo deste estudo foi determinar a prevalência da miopia una população de crianças e adolescentes portugueses no norte de Portugal.

Métodos:
Em 2016 e 2017 realizou-se um estudo transversal a uma população escolar de 4 municípios do Norte de Portugal (Celorico de Basto, Paredes, Paredes de Coura, Ponte da Barca) num total de 16 escolas. O erro refrativo foi determinado através de fotorrefracção para crianças atá aos 5 anos. Para as crianças entre os 6 e os 18 anos o erro reafractivo foi determinado através de autorrefracção e a avaliação da acuidade visual através do quadro de Snellen. Para detetar hipermetropia, nas crianças com acuidade visual igual ou superior a 20/20 a acuidade visual foi medida novamente através de uma lente de +1.00. A miopia foi definida para um valor do equivalente esférico de -1,00 D ou inferior e acuidade visual inferior a 20/20. A hipermetropia foi definida para um valor do equivalente esférico de +0.50D ou superior ou quando a acuidade visual através da lente de + 1.00D se manteve ou melhorou. Nas crianças com idade até aos 5 anos usou-se apenas os valores da fotorrefração com os mesmos critérios usados para a autorrefração. Apenas foram considerados dados do olho direito para a análise estatística.

Resultados:
Um total de 1542 crianças foram avaliadas (939 do sexo feminino) com uma idade média (média ± DP) of 9.2 ± 3,4 anos (de 4 meses a 18 anos). O valor médio do erro refrativo (equivalente esférico) foi -0.26± 1.11D. A prevalência total de miopia encontrada foi de 10.8%. A prevalência da miopia diminui até aos 2 anos de idade e começa a aumentar após o início da idade escolar (6 anos). No grupo com idade inferior a 1 ano 13.3% das crianças são míopes e 4.5% no grupo com idade de 1 ano. A partir dos 6 anos a prevalência da miopia foi de 6.9%, 8.6%, 8.5%, 14.5%, 12,8%, 9,8%, 11,1%, 14,4%, 17,9%, 13,8%, 15,8%, 20,0% e 31,6%, para as idades de 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 e 18 anos respetivamente. A diferença é estatisticamente significativa (Chi- quadrado <0.001). A partir dos 13 anos (inclusive) a miopia é a ametropia mais prevalente nesta população.

Conclusões:
Com este trabalho foi possível verificar que nos 2 primeiros anos de vida a miopia tende a regredir só reaparecendo no início da idade escolar (6 anos). Verificou-se também que a partir dos 13 anos (inclusive) a miopia é a ametropia mais prevalente nesta população."

Poster

#037

Prevalence of accommodative disorders in a clinical population

Ana Rita Pascoal, Sandra Franco

Abstract

"The prevalence of accommodative and non-strabismic binocular vision dysfunctions is still unclear. There is a great lack of consensus among the authors due to the different characteristics of the studied populations and the diagnostic criteria used by each one, being that an important limitation for the existence of good epidemiological studies in the different populations.

This study aims to study the prevalence of accommodative disorders in a Portuguese clinical population.

We evaluated 42 subjects with ages between 19 and 35 years, with a mean age of 25.9 ± 0.73 years.

The data were collected during a routine visual examination in an optometry clinic. Patients were asked to complete a questionnaire and the data collected, in addition to the objective and subjective refraction, were those required for the understanding of binocular vision and accommodative functioning.

The prevalence of accommodative insufficiency was 26.8%, accommodative excess was 2.4% and that of accommodative inflexibility was 12.2%, which represents in the total a prevalence of accommodative dysfunctions of 41.4%.

The prevalence of these accommodative anomalies in clinical practice appears to be significant, even though the population sample is small. The values obtained deserve our attention and it is important to give more attention to these dysfunctions in daily clinical practice."

Poster

#038

Progressão da miopia numa população clínica

Soraia Sousa, Jorge Jorge

Abstract

"Objetivo:
Estudar a progressão da miopia numa população clínica durante o período de 2 anos

Métodos:
Foram selecionados todos os sujeitos com miopia≤0.50 D (esférico equivalente) no olho direito e que tenham realizado pelo menos duas consultas nos anos de 2015, 2016 e 2017. Alta miopia foi definida para valores de EE ≤-6.00 D. A amostra foi dividida em 10 escalões etários. A mostra foi dividida em 3 grupos etários dos 0 até aos 19 anos, dos 20 aos 99 e mais de 40 anos.

Resultados:
Foram analisados os dados de 910 (478 do sexo feminino) sujeitos com uma idade média (média ± DP) of 23,1 ±13,7 anos (de 1 ano a 91 anos). O tempo médio entre as duas avaliações foi de 1,6 ± 0,6 anos. O valor médio do erro refrativo do olho direito (equivalente esférico) na 1ª consulta foi -2,61 ± 2,09D e na última foi de -3,07. ± 2,19D ($p<0.001$). A variação anual média foi de -0,33 ± 0,40D. Existe uma correlação estatisticamente significativa entre a idade e a variação anual média $r=0.503$ (teste Spearman $p<0.001$) o que indica que a variação é mais acentuada para a população mais jovem. No grupo até aos 19 anos a variação média anual foi de -0.46 ± 0,40D e -0.19 ± 0,28D para a faixa etária dos 20 aos 39 e de -0,07 ± 0,40D para o grupo de mais de 40 anos (Kruskal-Wallis $p<0,001$). Não existem diferenças estatisticamente significativas para a variação anual quando comparada para miopia baixa e alta nem por sexo.

Conclusões:
Nesta população a variação anual média foi de 0,33 D. para a faixa etária até aos 19 anos a progressão da miopia foi 2.,4 vezes superior à da faixa etária dos 20 aos 39 anos e 6,6 vezes superior à da faixa etária com mais de 40 anos"

Poster

#039

Relationship between spherical aberration and accommodative lag in symptomatic subjects

Jessica Gomes and Sandra Franco

Abstract

"In this work, a methodology was used that permits in vivo and in real time accommodative stimulation and simultaneous acquisition of the variations of ocular aberrations. Lenses with different powers coupled with a wavefront sensor by using a Shack-Hatmann sensor, were used. These lenses were varied in front of the subject´s eye while he kept a target clear. The Zernike coefficients were extracted and calculated some accommodative parameters, as the accommodative response and lag.

This method was tested in 4 patients with and without accommodative dysfunctions symptomatology, with age ranging from 22 and 45 years old, healthy, no history of ocular pathology, ocular surgery and orto-k, visual acuity (VA) ≥ 1.00 and spherical equivalent between 0 and +0.50 D.

Wavefront aberrations were correlated with accommodative parameters. Statistically significant relationship was found between 4th order spherical aberrations and accommodative lag: the spherical aberration presents more positive values the greater the accommodative lead, more significant in those who presented symptomatology and higher accommodative lead.

It is suggested more studies with larger population of symptomatic individuals.

The total high order aberrations (HOA) did not show a significant relationship with the accommodative lag/lead."

Poster

#040

Study of Corneal Thickness in Patients with Diabetes Mellitus Type 2

Adelino, C., Monteiro, P., Brardo, F.

Abstract

"Corneal diseases are significant clinical problems that affect half of the diabetic population.

This study aims to analyze the thickness of each layer of the cornea in patients with Diabetes Mellitus (DM) type 2 and determine the association with systemic factors.

Thirty-two patients (32 eyes) with type 2 DM and 32 non-diabetic patients (32 eyes), with mean age 64.09±7.50 years were enrolled. The thickness of each layer of the cornea was measured by optical coherence tomography (OCT). The association between each corneal layer and the systemic factors, patient's gender, diagnosis time of DM, Body Mass Index (BMI), glycated hemoglobin (HbA1c), smoking and severity of Diabetic Retinopathy (DR), were evaluated.

There were no statistically significant differences in the corneal layers between diabetic and non-diabetic patients. Regarding the systemic factors, there was a moderate but non-significant correlation, between the HbA1c values and Bowman's membrane thickness values (r=0.346, p=0.115). Also, a moderate but non-significant correlation was observed between HbA1c values and epithelial thickness (r=-0.315, p=0.154). In the remaining systemic factors, no statistically significant differences were observed.

Although there are no significant changes in corneal thickness between diabetic and non-diabetic patients, the Glycated Hemoglobin, HbA1c, appears to be a predictive factor for changes in corneal thickness in patients with DM."

Poster

#041

Taxas de Controlo da Miopa em Lentes Oftálmicas

Rosado JL

Abstract

"Many clinicians in the field of vision understand that the uses of multifocal and bifocal ophthalmic lenses are not effective as a method of controlling myopia. However, they are the method that many parents prefer.

Several studies on the efficacy of bifocal and progressive lenses in controlling myopia have been made since Mandell B. (1959) to the present day. Since these early studies present some problems in their design, the more recent ones show that progressive and bifocal lenses have a mean control rate of 28.7% and 38.7%, respectively. However, if critical factors of patient selection, such as children with greater lag (≥1.00D) and / or esophories, and children with higher rates of progression (≥0.50 D / year), the mean control rates will be for progressive and bifocals of 35% and 47% respectively. Children with higher rates of progression are those who present myopia earlier in age, with higher values of myopia at the onset, parental myopia and astigmatism against-the-rule. In children with lower lags, lenses with prisms in their addition are more effective in the myopia control (53%).

It should be noted that in the eight studies that did not present statistically significant results as a myopia control method, five of them had patients with annual progression rates <0.5 D.

In conclusion, with suitable patient selection criteria, the use of progressive and particularly bifocal lenses is desirable.

References:
Cheng D et all: “Bifocal lens control of Myopic progression in Children”. Clin Exp Optom 2011;94:24-32
Cheng et all: “Effect of Bifocal and Prismatic Bifocal Spectacles on Myopia Progression in Children. Three-Year Results of a Randomized Clinical Trial”. Jama Ophthalmol 2014;132(3):258-264."

Poster

#042

The impact of two contact lenses designed for visual display terminals on the ocular surface of habitual contact lens wearers.

Martínez-Alberquilla, I, Rico-del-Viejo L, Gómez-Sanz, FJ, Lorente-Velázquez A, Hernández-Verdejo JL, García-Montero, M

Abstract

"Purpose: To evaluate the effect of two contact lenses (CLs) designed for visual display terminals (VDTs) on the ocular surface of habitual contact lens wearers.

Methods: Eighteen habitual CL wearers (14 men and 4 men; mean age 24.3 ± 2.3; range, 29 to 21 years) were enrolled in the study. The CLs used in the study were soft CL of silicone hydrogel (SiHy): 17 participants were fitted with Lotrafilcon B and 16 participants with Samfilcon A. Automated measurements were performed using the Keratograph 5M (Oculus, Germany). Three measurements of the tear meniscus height (TMHk), first break-up of the tear film (NIKBUT first), the average time of all tear film breakup incidents (NIKBUTavg), bulbar temporal redness (BTR), bulbar nasal redness (BNR), limbal temporal redness (LTR) and limbal nasal redness (LNR) were obtained before CL insertion (baseline - visit 1), after 20 minutes (visit 2), after 8 hours (visit 3) and finally after CLs removal (visit 4).

Results: CL wearers fitted with Lotrafilcon B showed a statistically significant increase in BTR and LTR (baseline visit-visit 4; $p<0.05$, respectively) during the daily wear. As well, Samfilcon A showed a statistically significant increase in TMHk, BTR, LTR and LNR (baseline visit -visit 4; $p<0.05$, respectively) during the daily wear.

Conclusions: In the light of these findings, Samfilcon A seems to provide a greater impact on the ocular surface of habitual CLs wearers who spent most of their day working with VDTs. These changes could lead to an increased symptomatology during the CL wear."

Poster

#043

Uma revisão sobre a aplicabilidade da regra ISNT

Sónia Pedro, Vasco Nina de Almeida, Ivo Soares

Abstract

"The clinical evaluation of the optic disc, in particular the neuroretinal rim, is fundamental for a correct diagnosis of glaucoma, since morphological changes in the optic nerve head are one of its main signs.

Based on fundus images, the neuroretinal rim has a larger inferior area(I), followed by the superior region(S), the nasal region(N) and the temporal region(T). This rule has been a common clinical tool to assess whether an optic disc appears to be normal orglaucomatouss.

The thickness of the retinal nerve fiber layer (RFNL) also obeys the same ISNT rule. Considering that the thinning of the superior and inferior fibers is one of the structural features of glaucoma, a change of the RNFL thickness is an indicator of glaucoma.

It is accepted that the ISNT rule, when applied to the RNFL thickness, is not useful in glaucoma diagnosis. However, when applied to the width of the neuroretinal ring, the studies are contradictory.

This study aims to carry out a systematic review on the ISNT rule and its variants when applied in a normal and glaucomatous population.

The most common methods and imaging modalities will be discussed, as well as the main factors that may influence the measurement of the ISNT rule, such as the delineation of the disc and the excavation limits, the subjectivity of the observer, and the variability of the appearance of the optic nerve head.

Since glaucoma is one of the main causes of global blindness, it is important to know the potentialities and limitations of the ISNT rule, to achieve an earlier diagnosis."

Poster

#044

Visual impairment among older women residing in nursing homes: a cross-sectional study in Santiago de Compostela (Spain)

Vázquez MC, Gigirey LM, Piñeiro-Ces A, del Oro CP

Abstract

"Objective: this study assesses the presence and degree of visual impairment and the relationship between vision and cognitive decline in older women living in nursing homes.

Methodology: 264 women participated in the study. The cognitive evaluation was carried out using the Spanish version of the Mini-Mental State Examination Test (MEC). A score less than 24 points on MEC test was identified as cognitive impairment. We measured monocular and binocular high contrast presenting visual acuity "PVA" (E-Snellen, 3.70 m). Visual impairment was defined as a PVA < 20/40 (better eye). Data analysis was developed using the SPSS 24.0 program.

Results: the frequency of visual and cognitive impairment reaches 49.2% and 37.7% respectively among participants. The frequency of cognitive deterioration increases in subjects with visual impairment compared to those with normal or near normal vision (PVA > 20/40). 13.8% of the volunteers have a binocular PVA < 6/18 for distance vision. We found association between the presence of visual impairment and cognitive impairment (ANOVA, $p = 0.033$). Correlation was found between PVA values and the scores of MEC test (Pearson $r = 0.269$, $p = 0.002$).

Conclusion: this study reveals a high frequency of visual disability among the older women examined and links between visual and cognitive impairment. These results bring to light the need for routine visual examinations of this population group and the need for future studies on the correlation between vision and cognition due to the importance of these variables on quality of life of older people."

Poster

#045

Wearing time analysis in a population of soft contact lenses users

Eduardo Insua Pereira; Madalena Lira

Abstract

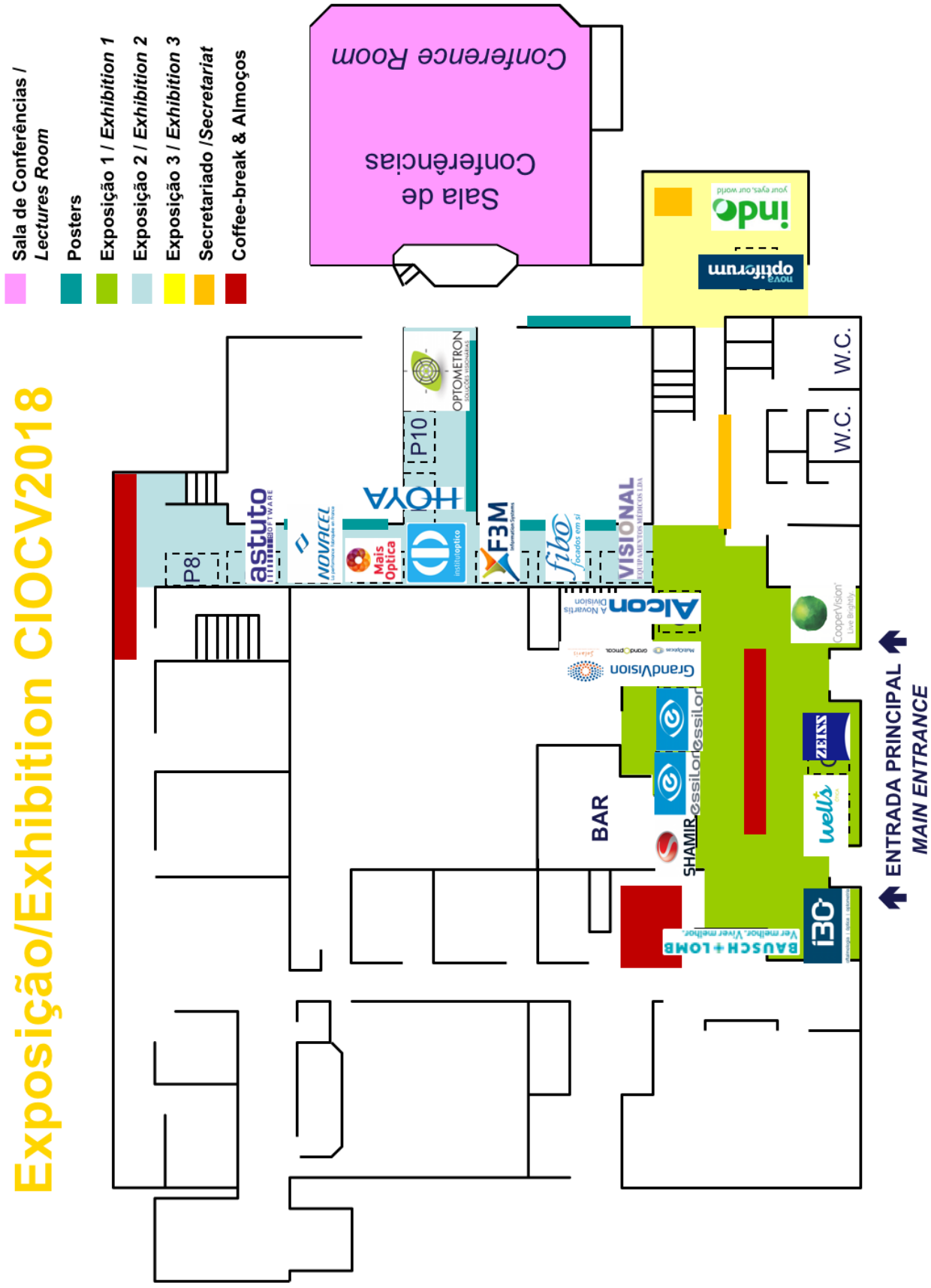
"Purpose:
The aim of this study was to investigate differences among total wearing (WT) and comfortable wearing time (CWT) for six daily disposable contact lenses (DDCL).

Methods:
In this contralateral open trial, 27 subjects (8 males) were randomly fitted with six DDCL: Stenfilcon A (CooperVision), delefilcon A (Alcon), nelfilcon A (Alcon), narafilcon A (Johnson & Johnson), nesofilcon A (Bausch & Lomb) and omafilcon A (CooperVision). The assessment was made over a period of ten days of lens wear in which the participants registered each day the number of hours wearing contact lenses (WT) and the number of hours that they considered to be comfortable with them (CWT).

Results:
WT was higher than CWT for all the lenses with an average time of 11.502.30h and 10.102.30h respectively ($p<0.001$). Nesofilcon A exhibited a larger difference between WT and CWT values (2.00 hours, $p<0.001$). Equally significant was the variation observed for nelfilcon A with a decrease of about 1.50 hours ($p = 0.001$). Narafilcon A presented a difference of 0.85h ($p = 0.008$) and delefilcon A 0.99h ($p = 0.047$). For these lenses, wearers reported a CWT closer to the WT. Stenfilcon A and Omafilcon A wearers reported variations of 1.51h ($p=0.065$) and 1.35h ($p=0.100$) respectively. Although the differences were not statistically significant.

Conclusion:
Wearing time is a plausible indicator of comfort in contact lens wearers. In this study, narafilcon A and delefilcon A reported CWT closer to WT which means that its wearers had a more pleasant experience during the 10 days."

Conference Area


Exposição/Exhibition CIOCV2018
Sala de Conferências / Lectures Room
Posters
Exposição 1 / Exhibition 1
Exposição 2 / Exhibition 2
Exposição 3 / Exhibition 3
Secretariado /Secretariat
Coffee-break & Almoços
Sala de Conferências
Conference Room
P8
P10
HOYA
OPTOMETRON
astuto
NOVACEL
Mais Optica
F3M
fibo
VISIONAL
Alcon
GrandVision
BAUSCH+LOMB
SHAMIR
BAR
W.C.
W.C.
ENTRADA PRINCIPAL
MAIN ENTRANCE

Sponsors

Premium Sponsors

Alcon® Vision Care

Divisão: Vision Care
Alcon Portugal - Produtos e Equipamentos Oftalmológicos, Lda.
Avenida Professor Doutor Cavaco Silva, n.º 10E
Taguspark 2740-255 Porto Salvo – PORTUGAL
TEL: 214 400 330
FAX: 214 400 315
Email: Serv.clientes@alcon.com

Sponsors

GrandVision Portugal Unipessoal, Lda

Rua do Carmo 102
1249-063 Lisboa
Telf. +351 213 234 500
Fax. +351 213 234 597
www.multiopticas.pt
recursoshumanos@multiopticas.pt
comercial@multiopticas.pt

CooperVision

Fabrico e distribuição de todo tipo de lentes de contacto e líquidos de manutenção
Apoio ao cliente:
TEL 800 263 263
EMAIL:portugal@coopervision-es.com

VISIONAL

Rua dos Moinhos 63,
4585-177 Gandra-PRD
www.visional.pt

Essilor Portugal, Sociedade Industrial de óptica, Lda

Lentes oftálmicas, armações de óptica e sol e equipamentos para óptica, optometria e oftamologia
TEL 219 179 800

Zeiss

Carl Zeiss Vision Portugal
ZEISS Group
Av. D. João II, 9-I Torre B Piso 3
1990-077 Lisboa, Portugal
TEL (351) 218981182
FAX (351) 218981152/3
www.zeiss.pt/vision

Well's - Óptica

Modelo Continente Hipermercados, S.A.
Edificio 2D - 5º piso Lugar do Espido - Via Norte
4471-909 Maia
http://www.wells.pt

i3O - Oftalmologia, Óptica, Optometria

Travessa da Presa Cachana, nº25, Frac. D, Lj 4
3720-265 Oliveira de Azeméis
TEL/FAX: (+351) 256 690 270
Email.: geral@i3o.pt
Web.: www.i3o.pt

Bausch & Lomb, SA

Lentes de contacto e produtos de manutenção
Serviço de Atendimento ao Cliente:
TEL 214 241 510

Sharmir Portugal

Rua do Cego n.º 100 Vilar, 4485-814 VCD
TEL (351) 22 9287510
FAX (351) 22 9287519
www.shamir.pt

Indo Portugal SA

Lentes oftálmicas, equipamentos para ótica, optometria e oftalmologia
Tel : 00 351 219609030
Web : www.indo.pt

Fibo - Fábrica Ibérica de Óptica, Lda.

Rua da Fábrica S/n
5000-662 Vila Real, PORTUGAL
TEL.: +351 259 378 187
FAX.: +351 259 347 602
Email.: geral@fibo.pt
http://www.fibo.pt

Institutoptico - Comercio de Óptica, Lda.

Rua Jorge Barradas, 16B
1500-270 Lisboa, PORTUGAL
TEL.: +351 21 351 53 50
FAX.: +351 21 315 15 17
Email.: geral@institutoptico.pt
https://www.institutoptico.pt

F3M - Information System

Edifício F3M
Rua de Linhares, 4715-435 BRAGA
Tel: (+351) 253 250 300
Fax: (+351) 253 613 561
Email: contacto@f3m.pt

Mais Optica

Dep.RH recrutamento@maisoptica.pt
Web: https://www.maisoptica.pt/

Hoya Lens Iberia, S.A.

Avenida 5 de Outubro, 293 5º Piso
1600 Lisboa
TEL.: +351 217 929 600
http://www.hoya.pt

Optometron - Equipamentos Técnicos e Electrónicos, Lda

Equipamentos Nidek para diagnóstico e tratamento na área da Optometria e Oftalmologia
Rua Manuel Ferreira, 19-A
2795-133 Linda-a-Velha, Lisboa
TEL 214 153 990
EMAIL: geral@optometron.com
www.optometron.pt

NOVA OPTIFORUM. Uma forma diferente de fazer contactologia.

RUA GARCIA DE ORTA, Nº 48 - 2º B,
2700-253 AMADORA

TEL (+351) 214 767 730
EMAIL: ltiago@optiforum.com.pt
http://optiforum.com.pt/

DMDI. ARTIGOS ÓTICOS LDA

E.n 1 km 144, nº 22, CARRINHOS
3100-323 Pombal

TEL (+351) 236 200 760
EMAIL: geral@dmdi.pt
http://dmdi.pt/

Astuto Software

Rua Magalhães de Lima, Nº23
3430-064 Carregal do Sal – Viseu, PORTUGAL
TEL.: +351 232 962 632 (Geral)
TELM.: 961 755 675 / 915 885 059 (Gerais)
FAX.: +351 232 962 634
Email.: geral@astuto.pt
http://astuto.pt/

NEOUM

NEOUM
Núcleo de Estudantes de Optometria da Universidade do Minho
Universidade do Minho
Campus de Gualtar, Braga
Web : https://www.facebook.com/neouminho/
Email : neoum.geral@gmail.com


Alcon
A Novartis Division
VISIONAL
EQUIPAMENTOS MÉDICOS LDA
essilor
SHAMIR
GrandVision
MultiÓpticas
grandOptical
Jolaris
CooperVision
Live Brightly.
iBO
oftalmologia | óptica | optometria
BAUSCH+LOMB
Ver melhor. Viver melhor.
institutoptico
wells
ÓTICA
F3M
Information Systems
indo
HOYA
ORsolutions
operating changes
Menicon
PERFECT VISIONS
PAUNEVISIÓN
CONTACTOLOGÍA AVANZADA
fibo
focados em si
neoum
Núcleo de Estudantes de Optometria da Universidade do Minho