

# International Perspectives

- A Research Update from Around the Globe-

Moderator: Eef van der Worp OD PhD

Saturday, January 19th, 2023

10:15 am - 11:55 am EST

## Course description

In the recent two to three years, due to COVID considerations, international travel was limited to a very large degree. Now, it is time to regroup and share the knowledge amongst peers that was gained the last couple of years in our specialty lens arena. This session will give an international update – both from an MD and OD perspective, on all specialty contact lens related topics or other vision correction methods (including surgical techniques) for the cornea.

## Speakers

Carina Koppen MD PhD

Stephen Vincent OD PhD

Eef van der Worp OD PhD

## Course Objectives - GENERAL

- Understand what the new improvements in the field of specialty lens fitting are, including:
  - Scleral lenses
  - Orthokeratology/Myopia Management
  - Soft Specialty Options
- Understand new improvements in the field Keratoconus management, including:
  - Corneal Crosslinking
  - Keratoplasties
  - Eye Rubbing & Eye Drops

## Course outline

### RESEARCH UPDATE & INTERNATIONAL ADVISORY BOARD

This session will review the latest from the literature and conferences around the world, on research topics related to specialty lenses and other vision rehabilitation solutions for patients (including surgical options) concerning the cornea. Members of this panel are part of the International Advisory Board (IAB) of the Global Specialty Lens Symposium: a group of 9 individuals from around the world, from clinical optometry practice to specialized MD practices and research institutes for a full and complete insight on what is happening globally in our field. Other members of the IAB than the one on this panel, have been

consulted for input into this session. The presentation format will be short 7-minute talks on several topics, alternating between the three speakers, after which there is time for questions and discussion.

## **COVERAGE**

Speakers in this session will cover the newest and latest from a series of international related conferences, including but not limited to the European Contact Lens Society of Ophthalmologists (ECLSO), International Myopia Conference (IMC), the SUMMIT, European Society for Cataract & Refractive Surgeons (ESCRS), International Cornea & Contact Lens Congress (Australia), CLASS (Contact Lenses of the Americas Specialist Symposium), American Academy of Ophthalmology (AAO).

## **PRESENTATION OUTLINE**

### **1. Scleral Lens Update - Stephen Vincent OD PhD**

- i. CLEAR Scleral Lens Report (2021)
  1. Overview and areas for future research
- ii. Corneal oxygenation
  1. Effect of fluid reservoir/lens thickness
    - Fisher et al (2020, 2022)
  2. Effect of lens fenestration
    - Edema (Fisher et al 2022)
    - Post lens tear dynamics
- iii. IOP
  1. Overview of previous studies
    - Experimental challenges
    - Pre vs post lens wear
    - Changes during lens wear
    - Short vs long-term studies
- iv. Front surface optics
  - Lens asphericity and primary spherical aberration
  - Previous studies altering anterior asphericity
  - Chiem et al (QUT)

### **2. Keratoconus Update - Carina Koppen MD PhD**

- i. What do we know about the genetics of keratoconus
  - Rabinowitz - 2021
- ii. Genetic testing for keratoconus
  - Hardcastle – 2021
  - Kumithini - 2022
- iii. Impact of eye rubbing and sleep position
  - Moran & Gatinel - 2020

### **3. Soft Specialty Lenses: Soft Lens Fitting - Eef van der Worp OD PhD**

- i. Ocular Surface Shape analysis – update
- ii. Relationship Corneal Topography vs Full Ocular Surface Topography
- iii. Classification of the Ocular Surface
  - Stephan Bandlitz et al – 2022
  - Markus Ritzmann et al – 2018
  - Greg DeNaeyer et al – 2019
  - Javier Rojas et al – 2022
  - David Piñero, Gonzalo Carracedo – 2022

- Dhaese, Elke Kreps, Alejancro Consejo - 2021
- iv. Soft Lenses for the Irregular Cornea Update
  - Jacobs et al - 2022
- v. Sagittal Height of Contact Lenses
  - Van der Worp et al – 2021
  - Abass et al - 2019
- vi. Higher Order Aberration & Astigmatism correction in Keratoconus
  - Harbiyeli et al – 2022
  - Abass et al – 2019
  - Hiraoka – 2022

#### **4. Orthokeratology - Stephen Vincent OD PhD**

- i. CLEAR Orthokeratology Report (2021)
  - 1. Overview and areas for future research
  - 2. Visually guided eye growth (and predictive metrics)
    - Spherical aberration (Lau et al 2020)
    - Weighted Zernike defocus coefficient (Fan et al 2022)
    - Effective corneal refractive power change/distribution (Chen et al 2022, Zhang et al 2022)
- ii. Lens design/optical components
  - 1. Compression factor
    - Lau et al (2020, 2022)
  - 2. Back optic zone diameter/treatment zone diameter
    - Li et al (2022)
    - Zhang et al (2022)
    - Lin et al (2021)
    - Guo et al (2021)
  - 3. Pupil diameter
    - Tan et al (2020)
    - Zhu et al (2022)
- iii. Combination therapy (low concentration atropine)
  - 1. Meta-analyses
    - Zheng et al (2022)
  - 2. Randomize clinical trial
    - Tan et al (2022)
  - 3. Combination therapy in poor responders
    - Chen et al (2022)

#### **5. Soft Lens Options for Myopia Management - Eef van der Worp OD PhD**

- i. Power Profiles different soft lens options
  - Montani et al – 2022
  - Kramer & Davila Garcia - 2022
- ii. Long term studies on soft lens options
  - Chamberlain et al – 2022
  - Sankaridurg et al – 2021
- iii. Peripheral and Central Optics in Soft MM lenses:
  - Tomiyama et al – 2022
  - Baenninger et al – 2022
  - Michaud et al - 2022

#### **6. Surgical techniques - Carina Koppen MD PhD**

- i. CXL epi-on and CXL at the slitlamp
  - Hafezi - 2021, 2022
- ii. Best parameters for determining keratoconus progression
  - Jiménez - 2021
- iii. Bowman layer transplantation
  - Parker - 2020
- iv. Intracorneal segments
  - Jacob - 2019

#### **Questions & Discussion Forum**

Panel:

- Carina Koppen MD PhD
- Stephen Vincent OD PhD