



# **2021 National Conference Planning Materials**

*November 13-15, 2021  
Online Conference*

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# AACO National Meeting 2021 Schedule

\*Times listed in EST

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Saturday, November 13th, 2021

## Instruction Courses

- 11:00 AM - 1:15 PM**      **Instruction Courses I**
- 11:00 AM      **The Utility of OCT Ganglion Cell Measurement in Visual Pathway Disorders**  
Mitch Strominger, MD
- 11:30 AM      **How to Not Miss a Pediatric Brain Tumor**  
Jane Edmond, MD
- 12:30 PM      **The Quick Pivot to Telemedicine**  
Kaajal Nanda, BMed Sci, CO
- 1:00 PM      **Discussion**
- 1:15 PM      Break
- 1:30 PM - 3:30 PM**      **Instruction Courses II**
- 1:30 PM      **Genetics and Ocular Syndromes**  
Ron Biernacki, CO
- 2:00 PM      **The Big Easy Method for Analyzing Medical Literature**  
Kyle Arnoldi CO, Jocelyn Zurevinsky OC(C), Linda Colpa OC(C), Jim Reynolds MD,  
Burton Kushner MD, Sally Murray CO, Cindy Pritchard CO
- 3:00 PM      **Round Table with the Research Experts**  
FOREA Research Experts
- 3:15 PM      **Discussion**
- 3:30 PM - 4:15 PM      Break
- 4:15 PM - 5:45 PM**      **Instruction Courses III**
- 4:15 PM      **Accommodative Esotropia Greater at Near Fixation: Can a Patch Test Differentiate a Novel Subtype?**  
Cindy Pritchard, CO, COT, J. Reeves Ellis Samaha, MD, MPH George S. Ellis, Jr, MD
- 4:30 PM      **Nystagmus Workshop: Case Presentations and Discussion**  
Gena Heidary MD PhD, Kaila Bishop OC(C) COMT, Jessica Carr OC(C) COMT, Kristyn Magwire CO, Veronica Ton COA, Peyton Hundley
- 5:30 PM      **Discussion**
- 5:45 PM      Adjourn

Sunday, November 14th, 2021

Scientific Sessions

<b>11:00 AM - 1:00 PM</b>	<b>AACO Business Meeting</b>
1:00PM - 1:30 PM	Break
<b>1:30 PM - 2:45 PM</b>	<b>Scientific Session I</b>
1:30 PM	<b>The Future is all about The History</b> Wanda Pfeifer, OC(C),COMT,CO
1:45 PM	<b>Guaranteeing Competence - Introducing Competencies into Orthoptic Training Programs</b> Dusty Gronemyer, CO, Douglas Fredrick, MD
2:00 PM	<b>Obstacles in Clinical Education in Orthoptics: A Survey of Medical and Program Directors</b> Wanda Pfeifer, OC(C),COMT,CO
2:15 PM	<b>The Flipped Classroom Approach to Teaching Basic Science Classes in Orthoptic Fellowship</b> Dusty Gronemyer, CO, Kim Merrill, CO, Jessica Tegeler, CO
2:30 PM	<b>Discussion</b>
2:45 PM - 3:30 PM	Break
<b>3:30 PM - 4:30 PM</b>	<b>Scientific Session II</b>
3:30 PM	<b>Single Horizontal Rectus Muscle Vertical Augmented Transposition with Posterior Fixation Suture in Management of Monocular Elevation Deficiency</b> Federico Velez, MD
3:45 PM	<b>Inter-observer Reliability of the Prism Vergence Test</b> Alexandra Sherven, OC(C)
4:00 PM	<b>Is there Agreement between Near and Distance Fixation for Secondary Position Measurements?</b> Jocelyn Zurevinsky, OC(C)
4:15 PM	<b>Discussion</b>
<b>4:30 PM</b>	<b>Lancaster Award Presentation</b>
4:35 - 4:50 PM	Break
<b>4:50 PM - 6:00 PM</b>	<b>AACO Regional Meetings</b>
6:00 PM	Adjourn

Monday, November 15th, 2021

## Scientific Sessions

- 11:00 AM - 12:15 PM**    **Scientific Session III**
- 11:00 AM    **Levels of Astigmatism and Anisometropia in Congenital Ptosis**  
Kaajal Nanda, BMed. Sci., CO, Jenny Yu, MD
- 11:15 AM    **Ocular Findings Associated with the L1CAM Mutation**  
Katrina Callus, BA, COT, OSC
- 11:30 AM    **How Much Strabismus Can You Have and Become a Pilot in the Air Force?**  
Rhea Nelson, CO
- 11:45 AM    **Crescendo - Decrescendo**  
Katie Tullar, 2nd year Orthoptic Student
- 12:00 PM    **Discussion**
- 12:15 PM - 12:30 PM    Break
- 12:30 PM - 1:30 PM**    **Scobee Memorial Lecture and Award Presentations**  
Dr. Stephen Christiansen MD
- 1:30 PM - 2:30 PM    Break
- 2:30 PM - 3:45 PM**    **Scientific Session IV**
- 2:30 PM    **Moebius Syndrome with Aberrant Convergence**  
Shelley Klein, CO, COMT
- 2:45 PM    **Inferior Oblique Over-Action after Cranial Nerve Six Palsy**  
Gabriella Waldusky, Orthoptic Student, Kim Merrill, CO
- 3:00 PM    **Interpretation and Management of Acquired Convergence Dysfunction**  
Gill Roper-Hall, DBOT, CO
- 3:30 PM    **Discussion**
- 3:45 PM - 4:00 PM    Break
- 4:00 PM - 5:00 PM**    **Scientific Session V**
- 4:00 PM    **Normative Values, Testability, and Validity for a New Preferential Looking Stereoacuity Test**  
Sarah Morale, BS
- 4:15 PM    **Reliability of Visual Acuity Using the Home Vision Check Kit Developed at the University of Minnesota**  
Anna Schweigert, CO
- 4:30 PM    **Graded Marginal Myotomy for Minimally Overacting Inferior Oblique**  
Jonathan Russell, CO, MBA
- 4:45 PM    **Discussion**
- 5:00 PM    Adjourn

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*Target Audience*

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Orthoptists, orthoptic students, ophthalmic technicians with experience in pediatric or neuro-ophthalmology, pediatric and neuro-ophthalmologists, residents, and fellows.

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*Course Level*

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Intermediate to advanced.

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*Overall Program Objectives*

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Educational Objectives: at the conclusion of the National Meeting, participants will be able to:

- Describe recent medical advances in the diagnosis, treatment, and management of conditions encountered while practicing orthoptics within the pediatric ophthalmology and adult strabismus community.
  - Apply improved techniques, use methods to compare and contrast current practices, and critically review empirical clinical research in order to provide the best possible treatment options for patients with strabismus and disorders of ocular motility and binocular vision.
  - Demonstrate methods of analysis and ethical treatment of patients.
  - Practice orthoptics with a new-found expertise based upon new methods discussed and demonstrated.
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*Specific Program Objectives*

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To review current therapies and new advances in diagnosis and management of diseases in each area of orthoptics, pediatric ophthalmology, and strabismus with particular emphasis on the following topics:

- Pediatric and Adult strabismus
- Amblyopia
- Analyzing medical literature
- Topics in Neuro-ophthalmology
- Diplopia
- Clinical Education in Orthoptics
- Strabismus Surgery



**ATTENTION ALL AACO MEMBERS:  
Our future needs YOU!**

**Sunday, November 14, 2021, 11:00am – 1:00pm  
EASTERN STANDARD TIME**

**AACO NATIONAL BUSINESS MEETING**

**AACO Members will have access to the Business Meeting through the Online Learning Center. The lecture sessions and the Business Meeting will show up under separate categories. If you do not see it listed, make sure you are logged in (top right side of the webpage).**

Online Learning Center: <https://aaco.mclms.net/en/>

# Instruction Course Abstracts

Saturday, November 13<sup>th</sup>, 2021  
11:00 AM – 5:45 PM EST

## **The Utility of OCT Ganglion Cell Measurement in Visual Pathway Disorders**

**Mitch Strominger, MD**

11:00 AM – 11:30 AM

Measuring the Ganglion Cell layer is now available when obtaining an OCT of the macula. This curious measurement is now supplying information on optic pathways disorders never seen before or thought to exist. This talk will discuss how to obtain the ganglion cell layer, how to interpret the results and how to correlate with visual pathway disorders.

## **How Not to Miss a Pediatric Brain Tumor**

**Jane Edmond, MD**

11:30 AM - 12:30 PM

This course will provide, via authentic (and often misdiagnosed) patient cases, an overview of the common intracranial tumors and their potential impact on the visual pathway. Tumors discussed will include optic pathway glioma, craniopharyngioma and cerebellar tumors.

## **The Quick Pivot to Telemedicine**

**Kaajal Nanda, BMed. Sci., CO**

12:30 PM – 1:00 PM

This course is aimed to reflect on the challenges ophthalmology faced in the peak of COVID-19, and the ways in which we overcame them. The steps taken to create and adapt to telemedicine within ophthalmology and correction of various faults along the way, will be discussed.

## **Genetics and Ocular Syndromes**

**Ron Biernacki, CO**

1:30 PM - 2:00 PM

This course will discuss basic genetic terminology and look at different ocular syndromes and their manifestations.

## **The Big Easy Method for Analyzing Medical Literature**

**Kyle Arnoldi CO, Jocelyn Zurevinsky OC(C), Linda Colpa OC(C), Jim Reynolds MD, Burton Kushner MD, Sally Murray CO, Cindy Pritchard CO**

2:00 PM - 3:00 PM

To maintain and advance professional excellence, the orthoptist must stay abreast of the ever-growing body of research in the field. This is the essence of continuing education and the foundation of evidence-based medicine. Sources include oral and poster presentations at scientific conferences, but these can be expensive or inconvenient to attend. The primary source of new information, therefore, should be the peer-reviewed publication.

To be a peer-reviewer, one must develop skills as a critical reader of the literature. It is a professorial skill that serves the academic and clinical community, while simultaneously advancing the knowledge and professional status of the reviewer. The learning curve may seem steep, but you are not climbing the mountain alone. And reaching the summit is well worth the effort!

In this workshop, a panel of experienced writers and reviewers from the Journal of Binocular Vision and Ocular Motility will break down the process of dissecting different types of articles, with the objectives of both gaining insight and bettering the manuscript. To do this, we will review individual sections of manuscripts together, in real time.



### **Accommodative Esotropia Greater at Near Fixation: Can a Patch Test Differentiate a Novel Subtype?**

**Cindy Pritchard, CO, COT, J. Reeves Ellis Samaha, MD, MPH George S. Ellis, Jr, MD**

4:15 PM - 4:30 PM

The preliminary results of 65 patients with accommodative esotropia who underwent a 20-minute monocular patch test (Marlow occlusion) will be presented. We compared alternate prism and cover test measurements at distance and near before and after the Marlow occlusion with attention to changes in distance/near disparity. The hypothesis was that there might be a sub-group of patients that show a collapse in the distance/near disparity following Marlow occlusion. The preliminary results show that 48% of subjects with distance/near disparity 10<sup>^</sup> or greater had a collapse in the distance near disparity following Marlow occlusion. All study patients are being followed to determine if response to Marlow occlusion is predictive of clinical course and outcome with regard to needing a bifocal, ability to eliminate the bifocal or a need for surgical intervention.

### **Nystagmus Workshop: Case Presentations and Discussion**

**Gena Heidary MD PhD, Kaila Bishop OC(C) COMT, Jessica Carr OC(C) COMT, Kristyn Magwire CO, Veronica Ton COA, Peyton Hundley**

4:30 PM - 5:30 PM

This case-based workshop will present and discuss clinical nystagmus cases of varying etiology and complexity. All cases have presented to the pediatric ophthalmology and strabismus clinic. Focus will be on initial diagnosis, course of treatment and long term outcome for these patients. Cases will be presented to a pediatric Neuro-ophthalmologist to allow for an expert opinion on diagnosis and management.

## **AACO Scientific Session I Abstracts**

Sunday, November 14th, 2021

1:30 PM – 2:45 PM

### **The Future is all about the History**

**Wanda Pfeifer, OC(C), COMT, CO**

1:30 PM - 1:45 PM

This interactive, fun presentation about events in AACO history will not only test your knowledge but get you thinking about how far we have come as an organization and where we might grow in the future.

### **Guaranteeing Competence- Introducing competencies into Orthoptic training programs**

**Dusty Gronemyer, CO, Douglas Fredrick, MD**

1:45 - 2:00 PM

As orthoptist play a larger role in the provision of care for children and adults with ocular and vision disorders, it is essential that our new graduates have demonstrated competency in the realms of knowledge, patient care and communication. The Accreditation Council for Graduate Medical Education (ACGME) has defined 6 competencies in which all physicians in training must demonstrate achievement of specific milestones as a requirement for graduation. In this presentation we will discuss how adoption of these competencies into Orthoptic training programs will allow for standardization of assessment and ensure the public and accreditation organizations that we are training competent orthoptists who will deliver excellent care for patients of all ages.

## **Obstacles in Clinical Education in Orthoptics: A Survey of Medical and Program Directors**

**Wanda Pfeifer, OC(C), COMT, CO**

2:00 - 2:15 PM

In 2020, the American Orthoptic Council (AOC) celebrated 85 years of establishing standards and guidelines for the education and ethical conduct of orthoptists in the United States. The AOC has been responsible for setting and monitoring standards for education of orthoptists and reviews and grants accreditation to orthoptic programs in the United States. As we attempt to move towards licensure, improving and promoting the quality of clinical education entails evaluation of the perceived obstacles and then devising plans to address these weak points. The instructors and program directors having once been students and now preceptors are in an ideal position to help identify these obstacles. Medical directors and program directors deal with administrative obstacles on a local as well as national level thus can also offer a differing viewpoint.

**Purpose:** The purpose of this study was to develop a survey specific to orthoptics that focused on identifying clinical obstacles in teaching and determine if program and medical director share the same views on the obstacles in clinical teaching of orthoptic students.

**Methods:** The Obstacles of Clinical Education Survey in Orthoptics (OCESO) consisted of mostly closed and semi closed questions using a 5-point Likert scale. The survey asked about obstacles to clinical education in four main areas, (1) director and preceptor related obstacles, (2) management obstacles, (3) patient/clinical structure obstacles and (4) facilities obstacles. The survey was administered electronically via email to all North American Program and Medical Directors listed in the 2020 AACO directory.

**Results:** The OCESO was administered anonymously to 20 orthoptic program directors and 16 medical directors. The response rate from program directors was 65% and 18% from medical directors.

**Conclusion:** The analysis showed that orthoptic program directors felt that the most significant obstacles to orthoptic training was dedicated time for teaching and department support. However, continuity between programs and formalized assessment techniques were also identified as barriers to clinical teaching.

## **The Flipped Classroom Approach to Teaching Basic Science Classes in Orthoptic Fellowship**

**Dusty Gronemyer, CO, Kim Merrill, CO, Jessica Tegeler, CO**

2:15 PM - 2:30 PM

**Introduction:** Over the last year, orthoptic fellowship students across the country were able to join a virtual Basic Science Course. This course used the google classroom platform that served as a database for pre-recorded lectures, videos, and other reading material. The class met weekly by means of zoom for virtual learning. We utilized a flipped classroom approach. This involves watching pre-recorded lectures, videos and/or reading material at home followed by group learning. This study evaluates the flipped classroom model compared tradition classroom learning.

**Methods:** Orthoptic fellows and lecturers completed a questionnaire. Questions were asked/answered using matrix question listing all topics to date with Likert scale. They were asked evaluation questions with key indicators about the topics, participation, and satisfaction about virtual learning.

**Results:** Among the orthoptic fellowship participants the flipped classroom resulted in greater connection with other students. Other advantages included being more interactive and engaging while incentivizing better classroom preparation.

**Conclusion/Relevance:** The flipped classroom method was received favorably by orthoptic fellows and may complement traditional methods of teaching.

**References:** Cabrera MT, Yanovitch TL, Gandhi NG, Ding L, Enyedi LB. The flipped-classroom approach to teaching horizontal strabismus in ophthalmology residency: a pilot study. J AAPOS. 2019;23(4):200 e201-200 e206.

# **AACO Scientific Session II Abstracts**

Sunday, November 14th, 2021

3:30 PM – 4:30 PM

## **Single horizontal rectus muscle vertical augmented transposition with posterior fixation suture in management of monocular elevation deficiency.**

**Federico Velez, MD**

3:30 - 3:45 PM

We describe successful management of three cases of acquired monocular elevation deficiency (MED) with superior transposition of the lateral rectus augmented with a posterior fixation suture with or without simultaneous inferior rectus muscle weakening. In each case, the lateral rectus muscle was transposed superiorly to the superior rectus muscle along the spiral of Tillaux, with maintained distance between the original lateral rectus muscle poles and the limbus. Augmentation was achieved with a posterior fixation suture 8 mm posterior to the muscles' insertion. At the time of lateral rectus transposition, simultaneous inferior rectus recession by 5.5 mm was performed in case 1 whereas simultaneous botulinum toxin injection was performed in case 3. With regards to all three cases, the mean age was 32 years [10-46 years] and the mean follow-up period was 10 months. The mean hypotropia was reduced from 35 prism diopters (PD) (range: 20 to 60 PD) to 4.67 PD (range: 0 to 14 PD) with a mean correction of  $32.57 \pm 9.34$  PD after 9 months. In our experience, full-tendon-width transposition of the lateral rectus to the superior rectus with posterior fixation suture corrects primary position hypotropia in MED and does not always require simultaneous inferior rectus recession. When transposing the lateral rectus muscle along the spiral of Tillaux, the measured distance of the original muscle insertion point to the limbus must be maintained in order to prevent recession of the muscle.

## **Inter-observer reliability of the prism vergence test**

**Alexandra Sherven, OC(C)**

3:45 PM-4:00 PM

Prism vergences are used to assess a patient's fusional abilities. A prism introduces peripheral retinal disparity and stimulates the vergence system to make a motor movement to regain fusion. The inability to overcome prism results in a diplopic image or suppression. Inter-observer reliability for this test must be high as it is often used as a screening tool and it is important for trained professionals to reliably identify whether a patient has overcome a prism as proof of peripheral fusion. The purpose of this study was to identify the level of inter-observer reliability between observers judging whether a subject's response to a 20 base out prism was positive or negative.

**Methods:** There were two groups of participants; patient participants and inter-observer participants. The patient participants included individuals who were eye care patients at Saskatoon City Hospital and were either orthophoric or had a manifest angle less than 10 prism diopters. With their consent, these participants were filmed performing the 20 base out prism test. Each video was then shown to professionals attending either the TCOS Scientific Session or the AACO Scientific Session in 2019. The inter-observer participants electronically indicated whether they believed the patient was able to overcome the 20 base out prism or showed a negative response. Additionally, inter-observer participants occupation, years of experience, frequency and confidence in performing the 20 base out prism vergence test was collected. There were sixty- six inter-observer participants' altogether, twenty-three participants from the TCOS scientific session and forty-three from the AACO scientific session.

**Results:** Overall, for the sixty-six inter-observers, reliability was found to be 33%. Agreeability between the TCOS and AACO Scientific Session were found to be similar with 32% and 30% agreeability, respectively. In regards to years of work experience and agreeability, individuals in their first five years of practice had the highest agreeability of 38%. Furthermore, participants who utilized the test 10 or more times a week and had the most confidence showed were the most agreeable at 44%.

**Conclusion:** This research study found there was very low inter-observer reliability amongst trained observers for the 20 base out prism vergence test.

## **Is there agreement between near and distance fixation for secondary position measurements?**

**Jocelyn Zurevinsky, OC(C)**

4:00 PM - 4:15 PM

The North American standard is to measure cardinal positions for distance fixation because it negates the effects of the near response, as well as those of proximal and voluntary convergence, and is more representative of the deviation that the parents see during real life and that the patient sees in the mirror. It may be valuable to be able to take diagnostic measurements at near fixation in situations where distance fixation is not possible, such as in outreach clinics, at the bedside, when the distance vision is reduced, when premium 20 foot exam lanes are not available, or when it is not possible to engage the child's attention with a distance target. This pilot study investigated the agreement between secondary measurements taken with near fixation to those using distance fixation.

**Methods:** Patients from the clinic of the Saskatoon City Hospital Eye Care Center with intermittent exotropia who were able to cooperate for both sets of measurements were enrolled. Measurements were taken in primary, up, down, right and left gazes for distance fixation. In order to standardize right and left gaze positions, the patient sat squarely in the chair facing straight ahead, and the chair was turned to 25 degree marks on the floor. Up and down gazes were not standardized for distance. For near fixation, targets were placed at 25 degrees from primary in all secondary directions for fixation at  $\frac{3}{4}$  of a meter. The same orthoptist took all measurements, beginning with distance fixation each time. Measurements were assessed for the presence of >10PD of change in right gaze or left gaze in comparison to primary, as well as for >15 PD of increase in XT in upgaze, or 10PD increase of XT in downgaze as compared to primary or the opposite gaze (ie looking for an A or V pattern).

**Results:** Five patients were found to have agreement between near and distance (ie either no pattern or change on side gaze; or the deviation changed on the same gaze for both; or there was an A or V present at both distances). The measurements for the remaining 10 patients failed to reveal the same presence/absence of change in side gazes or patterns.

**Conclusion:** This pilot study suggests a lack of agreement between secondary position measurements when taken at near versus distance. Based on the findings of the study, further study would require >1000 patients to have significant power to detect a true relationship. The author suggests a repeat pilot study with a more homogenous patient population and a different positioning for patient and fixation target.

## **AACO Scientific Session III Abstracts**

Monday, November 15th, 2021

11:00 AM – 12:15 PM

### **Levels of Astigmatism and Anisometropia in Congenital Ptosis**

**Kaajal Nanda, BMed. Sci., CO, Jenny Yu, MD**

11:00 AM - 11:15 AM

**Purpose:** To identify a correlation between the degree of congenital ptosis and levels of refractive error, visual stimulus deprivation and refractive amblyopia, and any changes with surgical intervention.

**Methods:** A prospective investigation of 30 patients aged 3 months to 8 years, from 2018 to 2021, with a diagnosis of congenital ptosis. Demographic data was documented and a full orthoptic assessment and cycloplegic refraction was performed. All tests were performed in a pre-defined order. Patients requiring surgical intervention for ptosis was at surgeon discretion, and these patients were monitored and included as part of the study. We did not interfere with the standardized care of these patients.

**Results:** The mean age at presentation was 27.1 months. The most affected eye was the left eye. The prevalence of amblyopia ranged from 19.2-29.4%. There is no clinical significance of the type of amblyopia; refractive, stimulus deprivation or both types, but those with stimulus deprivation amblyopia generally appeared to have poorer visual acuities. There was no significant difference found in the levels of astigmatism throughout the follow up period, in surgical and non-surgical patients. There was a significant improvement in the visual acuity of the affected eye ( $p=0.01$ ) and no significant difference with both eyes open ( $p=0.06$ ) in non-surgical patients. Age-matched surgical patients did not have significantly more astigmatism than non-surgical patients, but did have significantly smaller palpebral fissures and MRD,  $p=0.004$ ,  $p=0.05$ . There was a significant improvement of stereopsis ( $p=0.01$ ), in those patients who were able to perform the Frisby stereotest.

**Conclusion:** We recommend conservative management of congenital ptosis in most cases, unless there are clinically significant palpebral fissure measurements, MRD, poor levator function and/or a head posture present. Even in cases where surgery is delayed, patients with congenital ptosis must be followed closely given the high risk of amblyopia.

### **Ocular Findings Associated with the L1CAM Mutation**

**Katrina Callus, BA, COT, OSC**

11:15AM - 11:30 AM

L1 cell adhesion molecule mutation (L1CAM) is a rare, genetic condition typically presenting in males. A mutation of this gene may lead to a number of syndromes diagnosed in childhood, including MASA syndrome (mental disabilities, aphasia, spasticity, adducted thumbs) and HSAS syndrome (hydrocephalus, spasticity in muscles, adducted thumbs, and aqueduct of Sylvius stenosis). Very little is known about L1CAM mutation's effects on ocular motility. Four case studies from our institution will be highlighted. So far, nystagmus, strabismus, oblique overaction, and lid fissure synkinesis have been observed in the presence of this mutation. The purpose of this presentation is to shed light on the L1CAM mutation and possible associated ocular findings, in hopes of encouraging further research as an organization.

### **How Much Strabismus Can You Have and Become a Pilot in the Air Force?**

**Rhea Nelson, CO**

11:30 AM - 11:45 AM

This is case presentation of a young adult with strabismus trying to become a pilot in the United States Air Force (USAF). The presentation will discuss strabismus qualifications required to apply as well as the patient's initial plan and outcome including all prior exams, evaluation and management. After successful intervention, patient is currently awaiting the USAF admittance exam.

### **Crescendo - Decrescendo**

**Katie Tullar, 2nd year Orthoptic Student**

11:45 AM - 12:00 PM

A case presentation on an acquired form of periodic alternating nystagmus. Periodic alternating nystagmus is a rare form of nystagmus that can be congenital or acquired. This case focuses on a 31-year-old patient who presented to clinic with common characteristics of this unique form of nystagmus. This case will discuss the epidemiology & etiology of periodic alternating nystagmus in detail.

# 52<sup>nd</sup> Annual Richard G. Scobee, MD Memorial Lecture

Monday, November 15<sup>th</sup>, 2021

12:30 PM – 1:30 PM

**Scobee Lecturer: Stephen Christiansen MD**



Dr. Richard Scobee was the founder and first editor of the American Orthoptic Journal, and an ardent promoter of orthoptic education in the early days of American orthoptics. Today I have the honor of introducing an ophthalmologist who, like Dr. Scobee, has been a valued supporter of orthoptics throughout his career: Dr. Stephen Christiansen.

Dr. Christiansen currently serves on the American Orthoptic Council, previously chairing the AOC Program Committee, and serving on the Examination Committee since 2015. He is the current president of the Journal of Binocular Vision and Ocular Motility and past member of the American Orthoptic Journal Editorial Board. While at the University of MN, Dr. Christiansen served as the orthoptic program medical director, supporting program director, Kim Merrill in the training of new orthoptists. Dr. Christiansen is no stranger to the AACO, readily sharing his knowledge at our scientific sessions, courses and symposia for three decades. His career has taken him to academic institutions in Little Rock and Minneapolis, and currently Boston where he has previously worked or currently works with a number of fortunate and wonderful orthoptists who, in turn, deeply enrich the AACO and their orthoptic profession.

Following a short career in the general practice of internal medicine, Dr. Christiansen pursued an ophthalmology residency followed by a fellowship in pediatric ophthalmology at the Bascom Palmer Eye Institute in Miami. Since 1991, he has forged a career in patient care and academics, with university faculty positions in Arkansas and Minnesota. Today, Dr. Christiansen is Professor and Chair of the Department of Ophthalmology and Pediatrics at Boston University School of Medicine, and Chief of Ophthalmology at Boston Medical Center.

Dr. Christiansen's interests in pediatric ophthalmology and strabismus are wide and varied. He has published and presented extensively on eye muscle morphology and physiology, specifically, the effects of various pharmacologic agents on extra-ocular muscle. Other areas of study include ROP and other conditions associated with low birth weight infants, infantile cataracts, and various childhood syndromes to name a few. His bibliography includes over 70 original articles in refereed journals, over 50 refereed presentations for numerous ophthalmologic organizations, and over 160 invited presentations and lectures on a vast international scale. For over two decades he has contributed to PEDIG through several leadership roles and clinical participation. His achievements have been recognized over the span of his career, receiving many awards, most recently the cherished AAO and the AAPOS Senior Honor Awards.

Dr. Christiansen and his wife, Karen, have raised four children, and their family continues to grow with in-laws and grandchildren. World travel and exploration are part of the Christiansen nature. In fact, one of his contributions to pediatric ophthalmology is his service on medical missions abroad. From the start of his medical career, Dr. Christiansen has participated in over twenty overseas mission trips, mostly to Africa—Zaire, Zimbabwe, Rwanda and Lesotho. His passion for African mission work has deep roots in his childhood years. Dr. Christiansen was raised in Zimbabwe by missionary parents from his early childhood through high school. Our own Jennifer Lambert recently shared this regarding her employer:

*“What Steve will be known for after he retires is his commitment to medical missions and international partnerships with hospitals that have created opportunities for faculty, trainees, and researchers to broaden the scope of their purpose and work. This will be his legacy and it will be felt for years to come.”*

On behalf of the Richard G. Scobee Memorial Committee and the AACO membership, it is my honor to announce the 52nd Richard G. Scobee Memorial Lecture entitled, “Extraocular Muscle: The Dynamic Motor in Ocular Motor Disorders” by Dr. Stephen Christiansen.

Judy Petrunak Higgins  
Chair, AACO Richard G. Scobee Memorial Committee

## 2021 Richard G. Scobee Lecture Abstract

### “Extraocular Muscle: The Dynamic Motor in Ocular Motor Disorders”

Dr. Stephen Christiansen

Normal ocular motor phenomena (gaze, versions, ductions, saccades, pursuit, VOR) and abnormal ocular motor disorders (nystagmus, strabismus, paresis, ophthalmoplegia) occupy the large portion of every orthoptist’s and strabismus specialist’s clinical attention. And, while the extraocular muscle (EOM) is the final common pathway of a highly complex system of ocular motor control, few of us are well acquainted with this amazing and fascinating end-organ that subtends ocular motility. While EOM shares many characteristics with other skeletal muscles, it is uniquely suited for the demands of binocularity, alignment, gaze stability, micro and macro saccades, and smooth pursuit. It is the fastest of all the skeletal muscles; it has unique myosins and fiber types; and it has a highly complex motor feedback loop that is both visual and proprioceptive. Just as unique are the embryologic origins of EOM, an understanding of which is beginning to inform not just new diagnostic entities but new therapeutic directions for the treatment of strabismus, injury, dystrophy, and other myopathies. The tools in the toolbox of future strabismus specialists will look much different than what we “modern” clinicians currently employ. The goal of this presentation is to both expand our understanding of EOM and to consider ways that the unique characteristics of EOM might be leveraged to develop new treatments for ocular motility disorders.

## AACO Scientific Session IV Abstracts

Monday November 15th, 2021

2:30 PM – 3:45 PM

### **Moebius Syndrome with Aberrant Convergence**

**Shelley Klein, CO, COMT**

2:30 PM - 2:45 PM

Classic Moebius Syndrome is a rare non-progressive congenital disorder affecting CN VI and CN VII. Children typically present with an inability to form facial expressions and decreased abduction. There are many other deficiencies associated with Moebius Syndrome such as an inability to close the eyelids, difficulty sucking or chewing, limb defects and other cranial nerve involvement. A unique Moebius Syndrome case will be presented with aberrant convergence.

### **Inferior Oblique Over-Action after Cranial Nerve Six Palsy**

Gabriella Waldusky, Orthoptic Student, Kim Merrill, CO

2:45 PM - 3:00 PM

Chart review study of patients with a diagnosis of cranial nerve six palsy for the appearance of inferior oblique over action (IOOA). Chart review going back to 2010 with expected review of about 120 patients’ charts expected. We plan to collect the following data: sensorimotor examination, age, cause of sixth nerve palsy, other ophthalmic diagnoses, time to resolution of sixth nerve palsy, neuroimaging and orbital imaging studies, and any surgical interventions. We hope to build on the work (unpublished) of Dr. Culican looking at the development of IOOA after cranial nerve six palsy, to determine if IOOA is correlated to the level of residual esotropia, and to evaluate other characteristics’ relationship to the development of IOOA (such as patient age or time to resolution of cranial nerve six palsy). As etiology of this observed phenomenon is still debated, we plan to look at any available orbital imaging for any visible pulley shift to explain IOOA



## **Interpretation and Management of Acquired Convergence Dysfunction**

**Gill Roper-Hall, DBOT, CO**

3:00 PM - 3:30 PM

**Introduction:** Acquired convergence dysfunction often presents in a neuro-ophthalmology practice. The spectrum of dysfunction ranges from convergence paralysis or paresis from various causes, often concussion, to mild or severe exertion of convergence in spasm of the near reflex. As convergence is a voluntary function, the cognitive status or degree of effort in an individual can affect interpretation and management.

**Methods:** Examination and management techniques for patients with acquired convergence dysfunction will be described. Standard convergence therapy should be modified in patients with convergence paresis in the post-concussion syndrome. At the other extreme, convergence spasm can be challenging to treat. Subtle convergence spasm may be superimposed on other findings (underlying refractive error, small ocular deviation) and confound the diagnosis. Identifying these findings will contribute to correct management. While textbooks advocate the use of cycloplegia or even psychiatric referral in cases of overt convergence spasm, simpler methods may be applied with successful outcomes.

**Case reports:** Convergence spasm following concussion is a rare finding; three cases will be presented.

**Conclusion:** It is important to differentiate between convergence weakness or insufficiency and true convergence paresis. Management should be modified in patients with post-concussion syndrome. Recognizing that convergence spasm can present in a more subtle form may assist in differential diagnosis and management; some simple management techniques can help.

## **AACO Scientific Session V Abstracts**

Monday November 15th, 2021

4:00 – 5:00 PM

### **Normative Values, Testability, and Validity for a New Preferential Looking Stereoacuity Test**

**Sarah Morale, BS**

4:00 PM - 4:15 PM

**Introduction:** Age norms and testability for 3–5 year old children have been reported for the PASS III stereotest using a pointing response. We aimed to expand the normative data to children as young as 6 months, assess testability, and evaluate validity use of the PASS III as a preferential-looking test for younger children and children with special needs.

**Methods:** 68 control children, 362 children with eye conditions, and 167 children with special needs were tested with the PASS III. Percent testable was calculated for children with and without special needs, normal tolerance limits were determined, and test validity was assessed.

**Results:** In controls, mean PASS III stereoacuity improved from 371 arcsec at 12 months to 174 arcsec at 24 months, and 87 arcsec at 36 months. Testability in the 12, 24, and 36 months age groups were 81%, 87%, and 97% respectively and 92% for special needs children. Comparison to previously published norms and testing in a known nil stereoacuity cohort supported PASS III test validity. Compared to gold standard stereoacuity tests, accuracy of the PASS was 89%.

**Conclusion:** Overall, preferential-looking tests using the PASS III provide a sensitive and specific measure of stereoacuity with high testability for young children and children with special needs.

### **Reliability of Visual Acuity Using the Home Vision Check Kit Developed at the University of Minnesota**

**Anna Schweigert, CO**

4:15 PM - 4:30 PM

**Purpose:** Virtual pediatric ophthalmological examinations often require accurate visual acuity (VA). We developed a user-friendly Home Vision Check Kit (HVCK) for this purpose. The aim of this study was to validate the children's VA assessed at home using the HVCK compared to the VA obtained in clinic by experienced examiners.

**Methods:** We identified 3-8 year-old participants who could recognize optotypes. Participants' parents/guardians received the HVCK including step-by-step instructions and the material needed for the vision test. Parents/guardians

measured the participants' vision at home using the same optotype used in clinic within three days, recorded it and mailed us the results using a questionnaire in a pre-paid envelope.

**Results:** From 104 participants, we received 36 results. Four forms were excluded as two came in unlabeled and two were tested incorrectly (without glasses). VA of 3 eyes was recorded as "unable" (age 3). VA of 60 eyes met the inclusion criteria. VA tested at home was obtained and compared to the VA in clinic, the HVCK VA was equal or within one-line in 43 eyes (ages 3-8), 2 lines worse in the HVCK in 7 eyes (ages 3-5, 8),  $\geq 3$  lines worse in the HVCK in 8 eyes (ages 4-5, 8),  $\geq 3$  lines better in the HVCK in 2 eyes (age 6). Thirty-three parents/guardians rated test usability: 3 "difficult", 4 "fine", and 26 "easy" or "very easy". Child's cooperation ratings were: 3 "uncooperative", 4 "acceptable", 26 "good cooperation".

**Conclusion:** HVCK was consistent for 43 eyes (71.6%) with  $\leq 1$ -line difference compared to VA in clinic. HCVK was unlikely to over-estimate VA. Overall, the HCVK displayed fair reliability. Despite enthusiasm in clinic and follow-up phone calls, response rate was poor (34.6%), resulting in low sample size (34). Clinic follow-up should be considered for patients with  $>1$  line VA disparity using HVCK compared to the last in-clinic examination.

### **Graded Marginal Myotomy for Minimally Overacting Inferior Oblique**

**Jonathan Russell, CO, MBA**

4:30 PM - 4:45 PM

**Purpose:** To gauge the effectiveness of inferior oblique marginal myotomy procedure for mild inferior oblique overaction ( $\leq +2$ ) with small incomitant hypertropia and compare the surgical efficacy of a graded marginal myotomy (small vs large) of inferior oblique muscle.

**Methods:** Retrospective chart review of all patients with intermittent exotropia with small angle incomitant hypertropia who had surgery from July 2017 to July 2019. This easy procedure can be performed with a low temp handheld electrocautery in less than 5 minutes and comprises of a single cautery incision from the anterior edge of muscle extending through 2/3rd of the muscle width (small marginal myotomy, v myotomy) and a similar second cautery incision 5 mm from the first incision starting from the posterior edge of the muscle and extending through 2/3rd of the muscle width (large marginal myotomy, traditional z-myotomy)

**Results:** In Group 1 (patients undergoing V-myotomy), mean preoperative hypertropia in primary gaze and contralateral gaze of action was 2.85 PD and 6.54 PD respectively. The mean postoperative deviation in primary position and contralateral gaze was 0.29 PD and 1.67 PD. In Group 2 (Z-myotomy), mean preoperative hypertropia in primary gaze and contralateral gaze of action was 6.55 PD and 10.17 PD respectively. The mean postoperative deviation in primary position and contralateral gaze was 1.26 PD and 3.41 PD respectively. The mean follow-up period was 31.23 months (range 10-52 months).

**Conclusion:** Graded Inferior Oblique Marginal Myotomy is an excellent addition to our existing armamentarium of Inferior oblique weakening procedures. It offers a safe, easy, effective sutureless alternative to weakening a minimally overactive inferior oblique muscle with small angle incomitant hypertropia with minimal risk of overcorrection.

# ON DEMAND

Access to on-demand content will be available through the Online Learning Center after the live sessions have ended.

## AAO/AOC/AACO Sunday Symposium

### Course Title: AAO/AOC/AACO Sunday Symposium

**Time:** On Demand

### Schedule & Speakers:

3 minutes	Introduction (Alex Christoff CO/ Mark Borchert, MD)
12 minutes	Etiology and Evaluation of Acquired Diplopia in Adults Seen by an Orthoptist Over a 3 Year Period (Alex Christoff, CO)
7 minutes	Evaluation and Management of CI (Lisa Rovick, CO, PhD)
22 minutes	Evaluation and Management of Divergence Insufficiency (Jonathan Holmes, MD)
9 minutes	Evaluation and Management of Heavy Eye Syndrome (Stacy Pineles, MD)
12 minutes	Evaluation and Management of Acquired, Symptomatic Vertical Strabismus (Mike Siatkowski, MD)
11 minutes	Wrap-up and discussion (Alex Christoff CO/ Mark Borchert, MD)

### Course Description:

1. Proposed title: "Double Trouble: Acquired Diplopia in Adults."
2. Proposed audience: Orthoptists, comprehensive ophthalmologists, pediatric ophthalmologists
3. Rationale: Diplopia (double vision) is a common symptom identified in older ophthalmological and neurological patients, frequently occurring in individuals with no prior history of strabismus who then develop an ocular misalignment after visual maturity (1, 2). With many underlying causes, evaluation of adult patients with acquired diplopia is a diagnostic challenge. Efficient management implies an accurate diagnosis after obtaining a detailed history and a careful clinical examination (3). Assessment of the patient's perceived diplopia must exclude other symptoms that can be misunderstood by the patient, including visual distortion from retinal disease, visual field defects, after images, and visual hallucinations. Treatment of diplopia should be according to the cause, with a goal of regaining and maintaining single binocular vision, and in the long term, providing treatment of the pathology that caused it, whenever possible. In this course, experts will share etiologies, history-taking strategies, discuss medical workup for the common causes of strabismus and acquired diplopia in adults, and describe treatment options, both non-surgical and surgical, for this potentially perplexing, challenging subset of patients.

### References:

1. Pratt-Johnson J, Tillson G. Why Does the Patient Have Double Vision? Management of Strabismus and Amblyopia: A Practical Guide. New York, NY Thieme Medical Publisher, Inc1994;242- 246
2. von Noorden G Binocular vision and space perception. Binocular Vision and Ocular Motility. 5th St Louis, Mo Mosby-Yearbook Inc1996;8- 40
3. Gräf M, Lorenz B. How to deal with diplopia. Rev Neurol. 2012;168(10):720–728

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Visit the Online Learning Center for survey links.

AACO Meeting Site <https://aaco.memberclicks.net/2021-national-meeting>  
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**IJCAHPO** - IJCAHPO credit is available for the ***livestream sessions only***. Due to their virtual program policies, no IJCAHPO credit is available for the recorded or On-Demand sessions. Attendance of 3 or more hours for the entire meeting must be recorded in order to receive credit - this is in lieu of the quizzes that were required last year. Attendance will be recorded using Google Forms submissions during the live sessions. There are no quizzes available for those who do not log attendance - please make sure to plan accordingly if you would like IJCAHPO credit.

## To receive credit:

### AOC

- Attend live or view recorded and On-Demand sessions
- Record 3 knowledge points per hour (keep for your records)
- Complete Course Evaluation Surveys

### IJCAHPO

- View live sessions ONLY
- Record your attendance at each session (look for the survey links in the chat)
- Complete Course Evaluation Surveys

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## Save the Date - Future Meetings

**February 12-17, 2022**

**Austin, TX**

NANOS - North American Neurology-Ophthalmology Society

[www.nanosweb.org](http://www.nanosweb.org)

**March 23 - 27, 2022**

**Scottsdale, AZ**

AAPOS Annual Meeting

<https://aapos.org/meetings/annual-meeting2022>

**May 1-4, 2022**

**Denver, CO**

ARVO - Association for Research in Vision and Ophthalmology

<https://www.arvo.org/annual-meeting/>

**June 9-12, 2022**

**Halifax, Nova Scotia**

TCOS and COS Annual Meeting

<https://www.cosprc.ca/2022-cos-annual-meeting-and-exhibition/>

[www.tcos.ca](http://www.tcos.ca)

**June 9-12, 2022**

**Liverpool, UK**

14th IOA International Orthoptic Congress

<https://ioacongress.org/>

**June 2022**

**Portland, OR**

AACO Joint Western / Midwest Regional Meeting

[www.orthoptics.org](http://www.orthoptics.org)

**September 9-12, 2022**

**TBD**

World Ophthalmology Congress

<https://icowoc.org/woc2022/>

**September 30-October 3, 2022**

**Chicago, IL**

AAO / AACO National Meeting

McCormick Place

<https://www.aao.org/annual-meeting/past-and-future-meetings>

[www.orthoptics.org](http://www.orthoptics.org)



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