

# **LAAVINTUAL Conference** June 4 & 5, 2021

International Anaplastology Association

the dance

iaavirtual.com



#### Greetings,

The International Anaplastology Association's Board of Directors is pleased to present our 34th Annual Educational Conference, and our first ever virtual conference. The past year has been a journey for all of us, but we are excited to be moving forward and grateful for the ability to provide inspiring educational opportunites for the anaplastology professional community and our healthcare and industry partners.

This year's conference theme is: The Dance. What do we mean by the dance? This theme aims to broadly recognize how anaplastology providers, our patients, and this organization have found themselves needing to gracefully navigate around various challenges, confront resistance and demonstrate resilience. Dance involves identifying a beat, establishing rhythm, adapting to changes, ups and downs, quick and slow, leadership, partnership, and trust. Dance can be methodical and leaves room for interpretation and exploration. There are myriad metaphors we can apply to draw relationships between dance and our work as clinical anaplastologists, the evolution and future of our profession, and even our patients' experiences throughout the processes of rehabilitation.

This conference program includes speakers who have creatively embraced this theme in there presentation topics, sharing about their research and experiences—their dance. We will hear from speakers across the globe, addressing areas such as:

- Patient Experience
- Patient outcomes/satisfaction
- Diversity, Equity, and Inclusion
- Materials and techniques
- Implant technology

- 3d applications to treatment planning and fabrication
- Scope of practice evolution/expansion
- Remote/satellite treatment
- · Business development and best practices
- Alternative treatment options

While the past year has undoubtedly dealt us all a great number of challenges to overcome, the IAA is proud of its success in embracing the potential of virtual learning and increaseing access to educational opportunites to a larger, more diverse, international audience. We are thrilled to spend two days immersed in learning and sharing with colleagues. Let's dance!

Warm regards,

Erin Stevens, MS, CFm 2021 IAA Conference Chair

The International Anaplastology Association Board of Directors

Erin Stevens, MS, CFmPreAllison Vest, MS, CCAViceAlejandro Padilla, MSSecColette Shrader, MS, CCATreAnat Sharon, DDSDirGillian Duncan, MFA, CCADir	esident-Elect ce President cretary easurer rector rector
Megan Thomas, MS, CCA	mediate Past President

# Anaplastology & the IAA

Anaplastology is a specialized healthcare field focused on providing custom, restorative prostheses for patients who are missing part of their face or body due to cancer, traumatic injury, or congenital differences.

Customized prosthetic rehabilitation serves as an alternative treatment option when surgical reconstruction is unachievable or undesired by the patient. Anaplastology services typically include custom facial, breast, and partial hand and foot prostheses.

The practice of anaplastology draws on advanced scientific data derived from research and best practices in biomedical sciences, dentistry, oncology, reconstructive surgery, materials science and engineering, applications of 3D modeling and printing, as well as artistic application of color theory, painting, sculpting, and mold fabrication.



The International Anaplastology Association is an international organization founded in 1980 as the American Anaplastology Association and incorporated in California as a 501c6 Nonprofit Mutual Benefit Corporation. The association originated to bring together a wide variety of specialists involved in providing restorative prostheses for patients with absent or undeveloped facial and somatic anatomy.

*Our Mission* – The IAA promotes quality patient care by supporting the development of best practices in anaplastology through educational conferences, networking, publication, and advocacy opportunities.

*Our Vision* – The International Anaplastology Association is the recognized global forum for excellence in continuing education, research, and innovation in anaplastology.

The IAA embraces these *core values*...

- To create an intellectual climate where members can come from diverse professions and turn information into knowledge.
- To introduce old and new members to ideas that will encourage critical thinking.
- To provide a respectful atmosphere in which members express their view, show their work and listen and learn from the work and views of others.

# anaplastology.org

# Anaplastology Association

# Program Schedule

Eastern Daylight Time	June 4		June 5
9:00 AM	Welcome	9:00 AM	IAA Business Meeting
9:30 AM	KEYNOTE SPEAKER <b>Gili Yaron, PhD (The Netherlands)</b> Doing facial difference: The lived experiences of individuals who have lost part(s) of the face	9:30 AM	Roundtable 3a – Challenging Implant Position: Workarounds, Communication with Surgeon and Implant Reps – OR – Roundtable 3b – Preserving Professional Credibility: Education, Specialization, Evolution, Reflection
10:30 AM	Break	10:15 AM	Roundtable 4a – 3D Workflows in Treatment Planning & Fabrication – OR – Roundtable 4b – Standards of Care: Ensuring a Positive Patient
10:45 AM	Anne Marie Riedinger, MA, CCA (France) Optical Illusions and Anaplastology	11:00 AM	Experience for Transgender Individuals Break
11:15 AM	<b>Ksenia Veselova (Russia)</b> Our Facial Prosthetics Experience: A Creative Way to Make Impressions More Precise	11:15 AM	KEYNOTE SPEAKERS <b>Francesca Gelai &amp; Nelly James (Kenya)</b>
11:45 AM	Adelien Denys, CPO (Belgium) Burn Treatment Techniques Using Silicone		The 'Eyes For All' Experience: Endeavoring to Provide Facial Prosthetic Services in Kenya
	Tjitske Bannink, PhD(c) (The Netherlands)	12:15 PM	Break
1017101	Semiautomatic Digital Design of Auricular Prostheses in Patients with a Unilateral Defect	12:30 PM	Amanda Behr, MA, CCA (USA) Paper Prosthesis: Case Study for Challenging Orbital Reconstructions
12:45 PM	Break	1:00 PM	<b>David Riesberg, DDS (USA)</b> Tracheoesophageal Obturator: An Analog Maxillofacial Prosthodontist's Quest in a Digital World
1:30 PM	Roundtable Ia – Bonding Silicone to Substructures & Magnet Surfaces – OR – Roundtable Ib – Custom Nipple & Breast Prostheses	1:30 PM	Break
2:15 PM	Roundtable 2a – HCR Applications: Direct Sculpting, Sockets, Repairs – OR –	2:15 PM	Sudarat Kiat-amnuay, DDS, MS, FACP, FAAMP, CCA (USA) Survey of Currently Used Materials for Fabrication of External Maxillofacial Prostheses in North America, Europe, Asia & Australia
3:00 PM	Roundtable 2b – Billing Miscellaneous Codes & Repair Codes Break	2:45 PM	Sophie Fleming, MSc (Australia) Exploring Solutions for Remote Healthcare Delivery with Facial Prosthetics
	Gina Cohen, MFA, CCA (USA)	3:15 PM	Break
3:15 PM 3:45 PM	New Material and Method to Create a Fracture Resistant "Moon" for Auricular Molds Lindsay McHutchion, MS (Canada) Digital Scans Simulate Tissue Movement for Auricular Prosthesis Design	3:30 PM	SPECIAL PERSPECTIVES Akhila Regunathan, BFA, MS (Canada) The Blessed Little One: Thoughts from the Perspective of a Clinician with a Clef <u>t Lip and Palate Child</u>
4:15 PM	Andrew Etheridge, MFA, CFo, CFm, C.Ped, CCA (USA) Assessing FormLabs biocompatible 3D printing resins for use in reengineering ocular prosthesis fabrication and clinical workflow	6:20 PM	
4:45 PM	Rodrigo Salazar Gamarra, DDS, MSc, PhD (Brasil) Smartphones and Open-Source Software for 3D Facial Prosthesis Fabrication	4.50 PM	Closing Address
5:15 PM	Announcements	5:15 PM	Tea Time/ Happy Hour Social Event



# Session Access

How to join the LIVE Session:

- 1. Visit iaavirtual.com.
- 2. Click on "Enter Sessions" from the navigation menu at the top of the webpage.
- 3. The password to enter this area is **Tango5678**.
- 4. Click the ENTER SESSION button for the session you would like to attend.

Note: The session schedule lists the presentations that will take place during each session. Multiple presentations may occur in one session. The Conference Program Schedule is split up by breaks, dictating the start and end of a given session.

5. "Waiting rooms" will be available 15 minutes prior to the start of each session.

6. You will be placed in a waiting room until the session begins at its scheduled time. At that time, you will automatically be directed to the session.

7. To join another session at a later time, repeat the steps above.

For additional details, Zoom instructions and participation resources, please review the 2021 IAA Virtual Conference **USER GUIDE**.

### **Continuing Education Units (CEUs)**

Sessions at this conference will earn Continuing Education Units with the BCCA. The BCCA requires that certificate holders acquire their own verification documentation that must include the conference or workshop agenda and one of the following: contact hours, certificate of attendance or a letter from the event sponsor of the course confirming both the dates and hours of attendance. CEU hours for this conference have been calculated by the IAA. The number of CEU credit hours is based upon instructional time, excluding welcomes, introductions, breaks, and other non-education events.

The International Anaplastology Association is happy to provide a certificate of completion indicating hours earned for each attendee. Following the conference, the IAA will e-mail you a Certificate of Attendance. Please note that you will only be issued a certificate if your registration fee has been paid in full and a complete CEU form has been submitted.

To access the CEU Form, visit **iaavirtual.com**.

# iaavirtual.com



### Gili Yaron, PhD

Maastricht University, Department of Health Services Research Maastricht, The Netherlands

# Doing facial difference: The lived experiences of individuals who have lost part(s) of the face

The human face is a wondrous, multilayered body part. It is the location of various sensory organs and bodily functions. In addition, the face is pivotal for (para)verbal communication. It is also associated with both our social and personal identity. And with our capacity for

empathy—some scholars view the face as the seat of our humanity. The face, in other words, has a unique place in our bodily topography, and plays a key role in human life. Indeed, the human attunement to faces is so deeply ingrained we regularly 'facialize' inanimate objects like the moon or a cup of coffee.

But what happens when faces are marked by 'disfigurement'? In her keynote, philosopher Gili Yaron will answer this question, by drawing on her qualitative study into the experiences of people who use a prosthetic device to replace a missing part of the face. As will become clear, losing part(s) of the face is not so much a medical or psycho-social condition, but an everyday affair. As they move, use everyday objects, eat, practice hobbies, travel, work, and interact with others, affected individuals encounter various challenges associated with their facial difference. In response, they develop new ways to 'do' their face. This 'doing' involves much ongoing work, which is never quite finished. Much like a dance, this work entails a constantly-shifting dialogue between body and environment.

But what can practitioners take from this empirical-philosophical analysis? Arguably, good treatment and support for people who have lost part(s) of the face requires a thorough understanding of their everyday experiences. How such an understanding would translate into practice, however, remains to be unpacked. The keynote will therefore conclude by discussing some clinical ramifications of the study's findings

#### **Presenter Bio**

Gili Yaron trained as a social philosopher (thesis cum laude, 2009), and proceeded to pursue a PhD in Medical Humanities at Maastricht University, the Netherlands in 2011. She defended her Thesis, titled 'Doing Facial Difference: The Lived Experiences of Individuals with Facial Limb Absence' in 2018. Yaron's research interests include the lived experiences of illness and disability, philosophical perspectives on medical technologies, comprehensive approaches to health, integrated healthcare, and qualitative methods. She has been affiliated with the University of Groningen, Zuyd Hogeschool, and the Netherlands Cancer institute-Antoni van Leeuwenhoek. Gili Yaron currently works as a senior researcher and lecturer at Maastricht University, Department of Health Services Research.

## keynote presentations

### Francesca Gelai & Janelle (Nelly) James

Eyes For All Nairobi, Kenya

#### The 'Eyes For All' Experience: Endeavoring to Provide Facial Prosthetic Services in Kenya

Nelly and Francesca have been working as ocularists in Kenya for a few years now. They are based in Nairobi where they run a modest private clinic. The prosthetics industry in East Africa is next to nonexistent. They are trying to forge a path and build awareness for this important industry.



Their initial training was completed in the UK in a very different environment to where they are working now. Over the course of their careers they have worked in over six countries around the world. They have faced many challenges along the way; from material supply issues, power cuts, water shortages, COVID-19 and attempted kidnappings to name a few. They discuss these experiences and shed light on the ways they have had to adapt and adjust their practise to suit their environment.

Join Nelly and Francesca as they recount their experiences in the ocular prosthetics industry so far, how and why they have come to be based in Kenya, the current situation with regards to prosthetics in Kenya and what they hope for the future of prosthetics on the African continent.

#### **Presenters' Bio**

Eyes for All is a passion project of two eye aficionados, Nelly James and Francesca Gelai. They met working as dispensing opticians in an optometry practice and have always been interested in all things eyes. They were drawn to this multifaceted vocation as it is the perfect hybrid of their love for eyes, craft, and working with/ helping people.

Nelly and Francesca completed their training in the UK with world renowned and experienced ocularist, John Pacey-Lowrie, in Nottingham and at Nottingham Trent University. Since training with John they have spent time in Athens, Greece with three generations of ocularists at Sankey International. They have also consulted with Keith Pine in New Zealand (author of the only ocular prosthetics handbook "Clinical Ocular Prosthetics"). Nelly and Francesca's Eyes For All initiative has lead to improved access to ocular prostheses for patients in Kenya, Ghana and Nigeria. In 2020, they received special funding from the Walter Spohn Trust for a new initiative, Prosthetics for All, to expand their services to include silicone facial prostheses.



### Anne Marie Riedinger, MA, CCA

Centre d'Epithèses Faciales Strasbourg, France

#### **Optical Illusions**

What are optical illusions? How do optical illusions interfere in our perception of reality? How does our brain correct what we see? In the field of anaplastology, how can we be fooled by illusions? Examples of color illusions, depth illusions, symmetry, shape and size illusions will be approached. How to cheat with reality and illusions, how to educate our eyes to detect these illusions and to play with them? How compromises help us to deal with illusions in facial prosthetics?

#### **Presenter Bio**

Anne-Marie Riedinger, MA, CCA, is an anaplastologist and consultant for bone anchored surgery. She treated patients, educated anaplastologists, gave advanced lectures, workshops and panels in Europe, Brazil, Japan and North America. She has written a number of articles in the field and was the Program Chair of the 24th IAA Congress in Paris, France, in 2009.

Her areas of interest are facial prostheses and research in new technologies. A pioneer in France for bone anchored prostheses since 1986, she introduced 3D technologies since 2013 for the design of facial prostheses and she likes new challenges. She is a long time member and a former President of the IAA (2009-2011) and is the President of the Syndicat des Epithésistes Français.

Anne-Marie graduated in Medical Art from the Ecole Supérieure des Arts Décoratifs de Strasbourg, France, where she eventually became a teacher (1996-2000). She specialized in facial prosthetics with Susan Habakuk at the University of Illinois, Chicago, USA and then with Gillian Duncan in Homburg, Germany. Back in France, she settled down in Strasbourg and Paris.

### Ksenia Veselova

Maxillofacial Prosthetist Pavlov First Saint Petersburg State Medical University St. Petersburg, Russia

## Our experience of facial prosthetics: creative way to make impressions more precise

Objectives: Facial defects can be acquired due to different causes, such as trauma, infections, congenital disorders and tumors. Prosthetic rehabilitation is a treatment of choice when other surgical reconstruction is not possible. The objective of this case report is to demonstrate our experience in manufacturing facial prostheses and to describe a modified procedure for obtaining an impression that makes pouring of the cast more precise and gives us confidence throughout our process of fabrication—our dance.



Methods: Four cases of implant-retained prosthetic rehabilitation of patients with nasal and orbital defects are demonstrated. Surgical, clinical and technological aspects of the treatment are described. Heat-temperature-vulcanized silicone, anti-slump agent, intrinsic and extrinsic pigments were used for facial prostheses fabrication. The prostheses were designed to be harmonious with surrounding tissues. Moreover, we used custom-made reinforcing devices during each impression. The reinforcing device should be incorporated between layers of impression material. In this way, a large impression covers the defect site and remaining surrounding tissues of the face become more rigid and resistant to deformation during cast pouring.

Results: Fabrication of implant-retained facial prostheses gives us an opportunity to improve aesthetics, retention and patients' quality of life. Using a custom-made reinforcing device makes the impression and cast more precise, which is extremely important for satisfying outcomes with implant-retained facial prostheses.

Conclusions: In our opinion, the art of anaplastology is like a pair figure skating. You should be patient enough and make a lot of effort to develop required skills. Every member of the team has his own area of responsibility, but communication in the team is a crucial element. Understanding of rules, evaluation of risks and ongoing searching for creative solutions at the same time make the dance safe and gorgeous.

Keywords: facial prosthesis, facial impression, anaplastology.

#### **Presenter Bio**

Ksenia Veselova graduated from Pavlov First Saint Petersburg State Medical University, Saint-Petersburg, Russia in 2014 (Faculty of Dentistry). From 2015-2017, she did her clinical residency in maxillofacial surgery,

and fellowships in prosthetic dentistry and dental surgery in 2018. She is currently a junior researcher in the Department of Modern Dental Technology, Institute of Dentistry and Maxillofacial Surgery of Pavlov First Saint-Petersburg State Medical University, specializing in maxillofacial prosthetics and anaplastology. "Any sufficiently advanced technology is indistinguishable from magic" (Arthur C. Clarke)



#### Co-Author: Natalya Gromova, Anaplastologist

Pavlov First Saint Petersburg State Medical University St. Petersburg, Russia

Natalya Gromova graduated Pavlov First Saint Petersburg State Medical University, Saint-Petersburg, Russia in 1985. Since 1991, Gromova has worked as a master dental technician. Additionally, she has served in the following roles: Consultant for IVOCLAR vivadent (2008 – 2012) and lecturer of dental technology in the Department of Propedeutics of Dental Diseases (Pavlov First Saint-Petersburg State Medical University). Gromova obtained a bachelor's degree from Herzen University (Institute of Psychology) in 2017, and is now pursuing a master's degree in Psychological Counseling in Professional and Social Settings. She currently serves as head of the prosthetic laboratory of the Institute of Dentistry and Maxillofacial Surgery at Pavlov First Saint Petersburg State Medical University, where she works as an anaplastologist.

### Adelien Denys, CPO

Ottobock, Center for Craniofacial Epithetics Sterrebeek, Belgium

#### Burn Treatment Techniques Using Silicone

After a heavy burn, and an eventual operation (typically skin graft), there is a risk of tissue becoming hypertrophic, forming keloid scars, etc. This can result in the tissue becoming thicker, scarred, and discolored. In an attempt to prevent, or lessen, these issues (along with kinesiotherapy, needling, and medication), placing pressure against the skin and creating an airtight barrier to prevent the skin from drying out are techniques that can result in a more supple and even skin texture. This can be achieved by using a combination of silicone and a harder (plastic) material to apply pressure evenly against the tissue. The principle behind this technique is that by creating a barrier (silicone), you prevent the moisture in the tissue from evaporating, thus keeping the tissue hydrated. In combination with this, adding



2021 Iaa

pressure to the affected area will limit the thickening of the tissue. In the early stages of scar formation in the face, measurements are taken in order to create a custom silicone pressure mask. This is done by taking plaster impressions or by scanning the area. A positive model is created and modified to apply extra pressure in key tissue areas, based on the specific situation for the patient. A thin silicone mask and a harder plastic shell are both vacu-formed on the corrected plaster / printed model to fit the patient with the correct pressure. In mobile areas, such as the hands, a similar orthosis can be made to help reduce contracture and help to improve mobility of the joints. Many patients who are affected by these types of burn injuries will often undergo prosthetic rehabilitation after the tissues have stabilized. Burn centers often work with anaplastologists to provide ear, nose, and finger prostheses to patients who have sustained these types of injuries.

#### **Presenter Bio**

Adelien studied Orthopedic Technologies at Thomas More University of Leuven, in Belgium, and has been working for Ottobock since 2018. For the past three years she has been working in two burn centers and has been training at an Ottobock anaplastology clinic since the beginning of 2020.



### Tjitske Bannink, MSc, PhD(c)

Netherlands Cancer Institute Department of Head and Neck Oncology and Surgery

# Semiautomatic digital design of auricular prostheses in patients with a unilateral defect

Objectives: The conventional process of fabrication of facial prostheses is time-consuming and highly dependent on the skills of the anaplastologist. Building on previous research on the use of 3D scanning and printing in auricular prosthetics, we developed a new computer-aided method of designing auricular prosthesis for patients with a unilateral ear defect, with the aim of reducing these limitations.

Methods: Digital surface data of the face and unaffected auricle is obtained by non-contact optical scanning (Artec 3D, Luxembourg). A patient specific prosthesis design is computed using an in-house developed algorithm in MATLAB (The MathWorks, Natick, MA). The design is created by mirroring the contralateral side of the face and optimization of the auricle's position and shape by alignment based on the face (Figure 1). Next, the auricular prosthesis is extracted and the prosthesis edge is warped to the defective skin surface (Figure 2). Except drawing a region of interest around the unaffected auricle and optimizing few parameters, the algorithm automatically computes the prosthesis design.

Results: Computed prosthesis designs show a case specific shape, size, position and orientation based on the 3D surface data. An example case is shown in Figure 3. Previous tests of the algorithm's performance on healthy volunteers' data indicated that the algorithm designs auricular prostheses with an average degree of symmetry similar as the volunteers own auricles.

Conclusions: This novel method for semiautomatic digital design of auricular prostheses has shown preliminary positive results in healthy volunteers and first patient cases. Next step is implementing and evaluating this methodology in the clinical workflow. In addition, future research on time savings and decreased dependency on the artistic skills of the anaplastologist due to automation of the design process are of interest.

Promotor: prof. dr. Michiel van den Brekel; copromotores: dr. Baris Karakullukçu and dr. Maarten van Alphen; anaplastologists: Shirley Bouman and René Wolterink.

#### **Presenter Bio**

Tjitske Bannink has received her Master's Degree in Technical Medicine in September 2020 at the University of Twente. Her master thesis was titled 'Implementation of 3D Technologies in the Anaplastology Workflow'.



In November 2020, she continued the research project as PhD candidate at the Head and Neck Oncology and Surgery department of the Netherlands Cancer Institute.

### Gina Cohen, MFA, CCA

Aesthetic Prosthetics Pasadena, California, United States

#### New Material and Method to Create a Fracture Resistant "Moon" for Auricular Molds

Plaster based materials traditionally for fabricating the Moon or third, crescent shaped portion of auricular molds are often fragile. Many more durable materials heat up when curing. I will present my methods in the use of nontoxic and non-exotherming material "Apoxy-Scuplt" by Aves in creating a very strong and practical Moon.



#### **Presenter Bio**

Gina Cohen started working in the field of anaplastology in 2006 in the Maxillofacial technician training program at Columbia Presbyterian Hospital and the Bronx VA in New York. After completing the program in 2008, Gina joined the private practice, Aesthetic Prosthetics, in Pasadena, CA. Prior to that, she earned a Bachelors of Arts degree at Florida State University and a Masters of Fine Arts degree in Sculpture at the New York Academy of Art. She is a member of the International Anaplastology Association and a board Certified Clinical Anaplastologist.



### Lindsay McHutchion, BSc, MS

Institute for Reconstructive Sciences in Medicine (a joint initiative of Alberta Health Services, Covenant Health, and the University of Alberta) Misericordia Community Hospital Edmonton, Alberta, Canada

#### Digital Scans Simulate Tissue Movement for Auricular Prosthesis Design

Digital technology has found application in many stages of facial prosthesis design and fabrication. Advances in digital manufacture

technology and materials have expanded the role that these tools play in these treatment pathways and the development of 3D printed prosthetic silicone holds potential to allow for direct digital prosthesis fabrication. However, many design problems that are addressed in traditional prosthetic treatment pathways still need to be solved in digital pathways. One of these challenges is how to design prostheses that fit through a range of facial movements. This presentation will explore findings from research into the simulation of tissue movement in the digital design of auricular prostheses using a variety of static scans. Successes and residual challenges encountered during this process will be described. Design considerations encountered throughout the process of developing a digital pathway for movement simulation and prosthesis design will be discussed.

#### **Presenter Bio**

Lindsay McHutchion, BSc, MS is a clinical anaplastologist at the Institute for Reconstructive Sciences in Medicine, a joint initiative of the University of Alberta, Covenant Health and Alberta Health Services, based at the Misericordia Community Hospital in Edmonton, Alberta. Lindsay earned a Master of Science in Biomedical Visualization from the University of Illinois at Chicago, where she received anaplastology training at the UI Health Craniofacial Center. Lindsay also serves as on the IAA Education Committee as the Publishing Subcommittee Chair.

### Andrew Etheridge, MFA, CFo, CFm, C.Ped, CCA

The Anaplastology Clinic Durham, North Carolina, United States

## Assessing FormLabs biocompatible 3D printing resins for use in reengineering ocular prosthesis fabrication and clinical workflow

Though there have been incremental changes in the world of ocular prostheses, there has been no revolutionary advancement since the WWII era. With the invent of accessible 3D technology and printing it is time to



expand the way we consider ocular fabrication and design. In 2019 Andrew Etheridge (along with collaborators Tim Currence and Devin Metcalfe) was awarded the Walter Spohn Trust grant. Etheridge, Currence, and Metcalfe began the task of reengineering oculars for orbital prostheses and indwelling oculars. This presentation will reflect the research funded by the grant including further developments birthed from the project. In the lecture we explore new materials, such as biocompatible3D printable resins and durable 3D printed molds, to produce a process benefiting not only the patient but practitioner as well. We also developed a modern clinical workflow starting with patient iris intake, which is used to render an exact hyper-realistic match. Next, we review ocular design, 3D printing, practitioner artistry, processing, and post processing. Lastly, we will discuss pros and cons of the new methodologies and concepts along with how these affect patient care both now and into the future.

#### **Presenter Bio**

Andrew Etheridge MFA, CFo, CFm, C.ped, CCA is a board certified clinical anaplastologist with credentials in the field of prosthetics and orthotics and is currently in the process of receiving his credentials as an ocularist. His expertise lies in facial, ocular, somato, pedorthics, and 3D technologies. He holds a BA degree from the University of North Carolina at Wilmington and an MFA degree from the University of North Carolina at Greensboro. Andrew continues to pursue creative opportunities receiving various art grants and regularly taking part in museum exhibitions. Andrew has been an active member of the IAA (International Anaplastology Association) for nine years and sat on the board of Directors for two. Currently he sits on BCCA board (The Board for Certification in Clinical Anaplastology) as a Director. In 2019 he was the recipient of the Walter Spohn Trust Grant for which he is preforming research and development of 3D printed ocular prostheses.



(in collaboration with Andrew Etheridge, CCA)

**Co-Authors: Tim Currence, Devin Metcalfe** Fourth Seal Studios Los Angeles, Califiornia, United States

#### Assessing FormLabs biocompatible 3D printing resins for use in reengineering ocular prosthesis fabrication and clinical workflow

Devin Metcalfe and Timothy Currence are the founders of Fourth Seal Studios, a Resin Eye and Digital Design company based in both Los Angeles and Pennsylvania.

Fourth Seal strives to utilize the latest techniques in digital design and 3d printing to add accuracy, consistency, and realism to their products. Tim and Devin both graduated from The Art Institute of Pittsburgh with a BA in Entertainment Design. In 2019 they were both co-recipients of the Walter Spohn Trust Grant for which they collaborate with Andrew in preforming research and development of 3D printed ocular prostheses.

### Rodrigo Salazar Gamarra, DDS, MSc, PhD

Plus Identity Institute (+ID) *(Mais Identidade)* São Paulo, Brasil

## Smartphone & Open-Source Software for Facial Prosthesis Fabrication

The purpose of this lecture is to share about an accessible 3D facial prosthetics workflow that we have developed at the Paulista University (UNIP) and the Plus ID (+ID) Institute in Brazil. We initiated in 2014 a research line about accessible 3D technologies for Anaplastology and Maxillofacial Prosthetic rehabilitation. As a non-profit organization with international and multidisciplinary support, we established a consolidated practice with advanced technologies. However, we wanted to simplify the resources needed to provide access to underserved regions, countries, or even areas without the prior budgets for high-cost technology to accomplish our worldwide common purpose. The objective has always been to create alternative opportunities for professionals that may be on different expertise levels.



We have been able to demonstrate the usefulness of smartphone technology for 3d digital captures instead of high-cost 3d scanner. Moreover, this can be done with open-source software instead of high-cost licensed software. With this open-source software and graphic computer power, we are able to reproduce the most delicate skin details at the highest resolution. We have also identified and employed low-cost 3D printers with enough resolution instead of industrial, high-cost equipment.

Recently, we have finalized programming the "+IDonBlender" open-source software, specifically for 3D facial prosthetic modeling, reducing the effort, learning curve, and 3D model prosthesis in a few minutes. The whole workflow was patented and named the PlusID Methodology. It is free for use and gaining more attention in publications and references in literature. I hope to illustrate the growing potential of the PlusID Methodology to advance your 3D facial prosthetics workflow.

#### **Presenter Bio**

Dr. Rodrigo Salazar Gamarra is a Health & Technology Innovation Consultant for the Prime Minister's Office Digital Governmental Secretariat in Perú and was awarded by the MIT Technology Review as a Humanitarian

Innovator 2018 for Latin America for his actions as director and researcher of the "Plus Identity Institute (+ID)" in Sao Paulo – Brazil, which is a nonprofit organization that rehabilitates people with limited resources who have aftermath from cancer on their faces. He is the president of the Peruvian Chapter of +ID "Más Identidad Perú".

Gamarra obtained his Ph.D. and MSc. from the Paulista University (UNIP) in Brasil. He is an associated researcher from the Centro Tecnologico da Informação Renato Archer (CTI), which is a public entity of the Ministry of Science, Technology, and Innovation of Brazil. He is also an Advisor in technological innovation and Maxillofacial Rehabilitation for the OREMA Foundation in Santiago de Chile, which is allied to the National Cancer Institute of Chile. Currently, he serves as President of the International Association of Anaplastology (IAA) 2020-2021 and as Vice President of the Latin American Society of Maxillofacial Rehabilitation 2018-2020. He coordinates the Digital Planning elective course in the "Universidad Peruana de Ciencias Aplicadas" and has a Specialized Clinical Practice in Lima.



### Amanda Behr, MA, CCA, CMI, FAMI

Augusta University Department of Medical Illustration, College of Allied Health Sciences Augusta, Georgia, United States

#### Paper Prosthesis: Case Study for Challenging Orbital Reconstructions

Problem solving remains the defining common characteristic among Anaplastolgists. Each case provides a unique challenge. Occasionally surgical reconstructions restrict prosthetic options. Additional surgery may not be possible for some patients. This case study details a method of creating

a thin, paper based prosthesis to combat a fatty flap placed on the orbit. The lack of depth of the orbit prevented the use of a traditional prosthesis. I discuss techniques to achieve similar results for challenging orbital cases.

#### **Presenter Bio**

Amanda Y. Behr, MA, CCA, CMI, FAMI is a board certified Medical Illustrator and Certified Clinical Anaplastologist. She serves as an Associate Professor in the Department of Medical Illustration at Augusta University's College of Allied Health Sciences.

### David Riesberg, DDS

University of Illinois Craniofacial Center & Shriners Hospitals for Children Chicago, Illionis, USA

#### Tracheoesophageal Obturator: An Analog Maxillofacial Prosthodontist's Quest in a Digital World

Tracheoesophageal puncture is a surgical procedure performed as part of voice restoration in an individual who has undergone total laryngectomy. When surgical complications occur, the resultant fistula may be enlarged to the point where it allows for aspiration during feeding. This presentation will describe the process of fabricating a customized tracheoesophageal obturator to manage this potentially life-threatening occurrence. The author will share the agony and ecstasy in his quest for a solution to this problem.



#### **Presenter Bio**

Dr. David Reisberg received his dental degree from Case Western Reserve University in 1977. He completed a General Practice Dental Residency at Michael Reese Hospital (1978) and has a certificate in Prosthodontics from Tufts University (1980) and one in Maxillofacial Prosthetics from The University of Chicago (1981). He has been Director of the Maxillofacial Prosthetics Clinic at The University of Illinois Hospital and Health Sciences System in Chicago since 1981. He served as Medical Director of The Craniofacial Center there from 1998 to 2010. Dr. Reisberg is a past president of both the American Academy of Maxillofacial Prosthetics and the International Society for Maxillofacial Rehabilitation. He is also president of Ameriface, a national organization that supports individuals with facial differences and a member of the Executive Council of the American Prosthodontic Society. Dr. Reisberg is certified by the American Board of Prosthodontics. His practice focuses on the surgical and prosthetic rehabilitation of pediatric and adult patients with congenital and acquired craniofacial conditions. In this role, he works closely with medical and dental specialists and allied health professionals at the University of Illinois Craniofacial Center and Shriners Hospitals for Children-Chicago.



### Sudarat Kiat-amnuay, DDS, MS, FACP, FAAMP, CCA

UTHealth School of Dentistry Houston, Texas, United States

#### Survey of Currently Used Materials for Fabrication of Extraoral Maxillofacial Prostheses in North America, Europe, Asia and Australia

Objectives: The objective of this presentation is to report the result of 2020 international survey of commonly used materials and techniques in the fabrication of extraoral maxillofacial prostheses and assess the current use of 3-D technology.

Materials and Methods: A 43-question survey was administered via Qualtrics to the members of the American Academy of Maxillofacial Prosthetics (AAMP), International Academy of Anaplastology (IAA) and the International Society of Maxillofacial Rehabilitation (ISMR). The subjects were queried regarding most commonly used materials, advantages/disadvantages of currently used materials, what considerations are most important in material selection and what consider to be the most reason for remaking of facial prosthesis. The use of implant and 3-D technology in the fabrication of maxillofacial prosthetics as well as barriers to care such as patient cost and insurance coverage were also be assessed.

Results: Majority of respondents reported currently using silicone MDX4-4210 with either Silastic Medical Adhesive Silicone Type A (A-100) or crosslinker A-103 and facial prosthetics were most often paid for by the patient (fee for service) with prices ranging from \$10 to \$5500 USD. Advantages considered to be most important when selecting a biomaterial were "good esthetics", "easy to color", and "thin margins"; the top three disadvantages were "discoloration with time", "extrinsic colors peel and/or fade", and "lack of reparability". Most respondents reported refabricating facial prosthesis every 2 years, most commonly due to "color fading" followed by "margin tears", and CAD/CAM technology was reported as being used, however, a small cohort (32%) report "still experimenting how best to use technology".

Conclusions: Results of this survey indicated that esthetics is the most important factor in the success of maxillofacial prostheses. More research is needed to advance physical and mechanical properties of extraoral maxillofacial prosthetic materials. CAD/CAM technology has been adopted and used in maxillofacial prosthetics and anaplastology clinical practice.

Key Words: Extraoral maxillofacial prostheses, silicone elastomer, prosthetic elastomer

#### **Presenter Bio**

Sudarat Kiat-amnuay, DDS, MS, FACP, FAAMP, CCA, holds academic appointments as a tenured professor and director of the Advanced Education in General Dentistry (AEGD) Residency Program. She is a diplomate



of the American Board of Prosthodontics and serves as director on the Board for Certification in Clinical Anaplastology. She is currently a fellow of the American College of Prosthodontists, the American Academy of Maxillofacial Prosthetics, the International Congress of Oral Implantologists, International Academy of Oral Oncology, International College of Dentists and the ADEA Leadership Institute.

abstracts

Dr. Kiat-amnuay is actively engaged in clinical practice, clinical teaching, and administering a residency program. Additionally, she conducts research in the fields of maxillofacial prosthetics, prosthodontics, implant dentistry and dental biomaterials. She is a reviewer/editorial board member for several journals, including Nature Publishing Group, and is currently a member of 20 dental and medical professional organizations. She has been with UTHealth School of Dentistry at Houston since 2001.



### Sophie Fleming, MSc

Prosthetic Art Technology New South Wales, Australia

#### Exploring Solutions for Remote Healthcare Delivery with Facial Prosthetics

The 2020's bring us an era where we are more geographically distant and yet more remotely connected than ever before. The need for innovation in ways to bridge the geographical gap between patients and clinicians has never been more apparent nor more likely than in this exciting era bursting with digital growth, research, and opportunity. This talk outlines some of the unique challenges faced in facial prosthetic provision in the 2020's and explores our research, available, and innovative digital technologies, that may be used to solve these problems for both an Australian and an International context. Current and future strategies are discussed.

#### **Presenter Bio**

Sophie is an Australian anaplastologist specialising in external prosthetic rehabilitation of the face and body. She is visiting prosthetist, and member of the multidisciplinary cranio-maxillofacial reconstruction team, and comprehensive ear clinic at the Chris O'Brien Lifehouse, Sydney, Australia. Her private practice Prosthetic Art Technology, is located in beautiful Northern New South Wales and serves a large geographical area of the Australian east coast with satellite prosthetic clinics in Brisbane, Newcastle, and Sydney. She collaborates regularly with colleagues from several specialties to provide interdisciplinary treatment to patient populations requiring facial prostheses at most major hospitals in Queensland and New South Wales. In addition Sophie has worked for a number of years within and alongside limb prosthetic facilities providing custom silicone solutions to amputees. Association memberships include the Institute for Maxillofacial Prosthetists and Technologists (IMPT), the International Anaplastology Association (IAA), and the International Society for Maxillofacial Rehabilitation (ISMR). She is a member of the ISMR Facial Prosthetics special interest group, and serves as cochair on the IAA Clinical Anaplastology Guidelines committee. She holds a Masters of Science in Maxillofacial Prosthetic Rehabilitation from King's College London. Research interests include quality of life impacts of facial prosthesis, and integration of emerging digital technologies. Clinical interests include reconstructive prosthetics of the face, breast, hand, and foot. Sophie is passionate about reconstructive prosthetics, particularly how the intersection of art practice, health science, and new technologies are evolving this field forward.

## **Perspectives Presentation**

### Akhila Regunathan BFA, MS

Institute for Reconstructive Sciences in Medicine (a joint initiative of Alberta Health Services, Covenant Health, and the University of Alberta) Misericordia Community Hospital Edmonton, Alberta, Canada

#### The Blessed Little One: Thoughts from the Perspective of a Clinician with a Cleft Lip and Palate Child

Cleft lip and palate children are subjected to several tests and procedures in their first year of life and for many more years, often visiting several health care providers through their lifetime. From surgery to speech and audio assessments, every step can be a struggle for patient and parent. Although being aware of the cleft prior to birth can



help a parent prepare for many of the obstacles to come, navigating the healthcare system is never an easy task.

Being a parent who is part of the healthcare system that treats your child can be both a blessing and a curse. The careful balance of "knowing too much" about the procedures her child awaits while trying to be a parent, instead of a clinician, can be quite the dance. In some cases, even when there is ample knowledge, support and guidance, a cleft lip and palate parent can still be presented with her share of surprises.

#### **Presenter Bio**

Akhila Regunathan, BFA, MS is a clinical anaplastologist at the Institute for Reconstructive Sciences in Medicine, a joint initiative of the Alberta Health Services, Covenant Health and the University of Alberta, based at the Misericordia Community Hospital in Edmonton, Alberta, Canada. Akhila earned a Master of Science in Biomedical Visualization from the University of Illionois at Chicago in 2004, where she received anaplastology training at the UI Health Craniofacial Center. Akhila also serves on the IAA Education and Clinical Services Committees.

# **Roundtable Sessions**

# Roundtable Sessions provide an opportunity for discourse and exchange within a smaller group setting.

The goal of these sessions is to create a space for attendees to converse and share ideas on a given topic in a less formal context than the main conference session. Since we can't be together in person this year, we hope for the Roundtable Sessions to serve as an alternative to the collaborative, social interactions we typically experience at our in-person conferences.

This year's program includes four Rountable Sessions, during which virtual breakout rooms are devoted to two concurrent Discussion Topics.

Roundtable Sessions are different from panel discussions. In a panel discussion, the discourse primarily occurs between the selected panelists. Rather, in our Roundtable Sessions, all attendees may contribute to the conversation. For each Discussion Topic, facilitators are present to introduce the topic and prompt the group. Attendees are encouraged to comment, ask questions, share ideas inspired by the conversation or their own experiences and expertise.

Please note: Roundtable Sessions will not be recorded. If you are interested in attending these, please plan to attend in person at the times listed on the following page.





## **Discussion Topics**

Friday, June 4th

#### 1:30 pm EDT

- 1a Bonding Silicone to Substructures & Magnet Surfaces
- 1b Custom Nipple & Breast Prostheses

#### 2:15 pm EDT

- 2a HCR Applications Direct sculpting, Sockets, Repairs
- 2b Billing Miscellaneous Codes & Repair Codes (USA)

Saturday, June 5th

#### 9:30 am EDT

- 3a Challenging Implant Position: Workarounds, Communication with Surgeon and Implant Reps
- 3b Preserving Professional Credibility: Education, Specialization, Evolution, Reflection

#### 10:15 am EDT

- 4a 3D Workflows in Treatment Planning & Fabrication
- 4b Standards of Care: Ensuring Positive a Patient Experience for Transgender Individuals

# **Poster Presentations**



### Seçil KARAKOCA NEMLİ

Department of Prosthodontics, Gazi University Faculty of Dentistry, Ankara, Turkey

#### Implant-retained finger prostheses with different attachment systems: Report of 4 cases

Karakoca Nemli S\*, Turhan Bal B, Bankoğlu Güngör M, İnal CB

Objectives: Total or partial amputation of fingers causes functional, aesthetic, and psychological problems that might be overcome by finger prostheses. Retention and

support are important in success of a prosthesis. Osseointegrated finger prosthesis provide improved stability in patients with short stumps. Also bring patients some tactile sensation and allow more effective grasping. Different retentive attachments are used to provide retention for implant retained finger prostheses, however there is no consensus on optimal attachment. The aim of this case presentation is to describe the use of four different attachments for implant retained finger prostheses.Methods: Implants placed to residual bone structures using two-stage surgical procedure. After osseointegration of implants, impressions of implants and stumps were taken. Four different attachments including magnetic attachment, metal telescopic attachment, zirconia telescopic attachment and dental precision attachment were applied to patients for retention of prosthesis. Silicone finger prostheses were fabricated and delivered to the patients. Treatment outcomes were observed with attachment types during patient recalls. Results: Advantages of implant-retained finger prosthesis including restoration of the natural appearance of the hand and providing some tactile sensation are well known. The choice of the optimal attachment for the finger prosthesis is not clear. In this case report, different attachments were evaluated during clinical use. The retention of prosthesis and grasping ability increased with telescopic and dental precision attachments however easy handling and increased soft tissue health was achieved with the magnetic attachment. Conclusions: Reconstruction of fingers with implant-supported prosthesis is a viable option for amputees by providing aesthetic and functional improvements. All of the attachment types used provided good retention while showed different results in terms of support, ease of insertion, and cleaning.

Keywords: finger prosthesis, implant, retentive attachment, silicone

The authors declares no conflict of interest.



### İrem Sözen Yanık

Hacettepe University Faculty of Denstistry Department of Prosthodontics Ankara, TURKEY

#### A New Anti-Magnetic Abutment Design in Extraoral Implants

SOZEN YANIK I\*, ERSU B



Magnet attachments are widely used in maxillofacial prostheses. In addition to many advantages of magnet attachments, there are also disadvantages such as the need to remove the magnetic abutments during the magnetic resonance imaging (MRI) and their negative effects on cells. This in-vitro study aims to evaluate the retention of new types of anti-magnetic abutment designs developed as an alternative to routinely used magnetic abutments. For this purpose, the retention of the new type of anti-magnetic abutments produced from Ti6Al4V alloy were compared to the extraoral implants currently in use. 3 groups were determined in the study and 10 samples were prepared for each group. 1st group is conventional magnetic system (GMS-control group), 2rd group is anti-magnetic abutment type 1 system (AMS1) and 3th group is anti-magnetic abutment type 2 system (AMS2). The samples were placed in the test system, after the test system was prepared. The dislodging forces were measured at cycles 0, 120, 360, 720, 1440. The retention values were measured as GMS: 3.39 N, IGMS: 3.38 N, AMS1: 8.83 N, AMS2: 8.75 N at the end of 1440 cycles, respectively. Two way ANOVA repeated measures were used to evaluate the results and compare the extraction forces of different abutment-attachment systems. AMS groups and GMS groups showed similar results within themselves (p> 0.05). A statistically significant difference was found between GMS and AMS1, GMS and AMS2 (p<0.05). As a result, it has been observed that the retention strength of the new type of antimagnetic abutments has higher values and can be an alternative to magnetic abutments.

Keywords: maxillofacial prosthesis, extraoral implant, anti-magnetic abutment


















### Special thanks to our 2021 Virtual Conference Sponsor Panthera Dental





TITANIUM SPONSOR



#### art & photography courtesy of

Patrick Palmer, Houston, TX, USA (cover artwork) Michaela Calhoun, Prosthetics at Graphica Medica, Minnesota, USA (page 2) International Anaplastology Association (page 23)

