The 66th Annual Meeting of the

AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS

The Changing Art and Science of Maxillofacial Prosthetics

MIAMI BEACH, FLORIDA OCT 26 - 29, 2019

2019 CONFERENCE PROGRAM

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to the 66th annual meeting of the

American Academy of Maxillofacial Prosthetics

Conference Dates: October 26-29, 2019
Eden Roc Hotel
Miami Beach, Florida USA

2019 Conference Title:

The Changing Art and Science of Maxillofacial Prosthetics

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AAMP MISSION STATEMENT

We are an association of prosthodontists who are engaged in the art and science of maxillofacial prosthetics. Our mission is to accumulate and disseminate knowledge and experience; and, to promote and maintain research programs involving methods, techniques and devices used in maxillofacial prosthetics.

The Academy is devoted to the study and practice of methods used to habilitate esthetics and function of patients with acquired, congenital and developmental defects of the head and neck; and of methods used to maintain the oral health of patients exposed to cancer-cidal doses of radiation or cytotoxic drugs.

MEMBERSHIP INFORMATION

How to Become a Member:
If you are interested in becoming a member, attending our Annual Meeting is the best way to become familiar with the membership and educational process. There are three primary membership tracks for the AAMP:

• Affiliate • Associate • Allied Health • Student •

Application Process and Membership Categories
Individuals eligible for membership in the AAMP include:
• Licensed dentists in good standing in the country in which they practice and retain citizenship
• Persons licensed, registered or otherwise permitted by law to practice as dental or maxillofacial prosthetic technicians who are involved in only non-independent or indirect patient care as directed or prescribed by a licensed dentist
• Student Membership is also available. Please see the AAMP web site to view the qualifications and to apply.

For more information, please navigate to our website:
www.maxillofacialprosthetics.org and click **membership** tab

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AAMP 2019 PRESIDENT'S WELCOME

Welcome to beautiful Miami Beach and thank you for joining us for the 66th annual scientific session of the American Academy of Maxillofacial Prosthetics. Maestro Program Chair, Dr. Tom Salinas has arranged an excellent program that will be of interest not only to maxillofacial prosthodontists but to our colleagues in other dental and medical specialties and to all allied health professionals who care for those with congenital or acquired maxillofacial conditions.

Our keynote speakers are of world renown and will be presenting the latest information on research and evidence-based clinical care. The program covers many topics so that there will be enough presented to pique everyone's interests. The scientific short papers and poster presentations will highlight the ingenuity and talents of your colleagues around the world and give you the opportunity to speak directly with presenters about their clinical and research presentations. The industry presentations and workshops being offered are sure to enhance your existing knowledge and skills or allow you to gain new ones.

We also want to recognize and thank all of the exhibitors who are joining us this year. Without industry partnerships, quality scientific gatherings such as this one would not be possible. We encourage you to visit them in the exhibition hall and learn of the many books, products and equipment available to help us toward our common goal of improving the quality of life for our patients. And speaking of the exhibition hall, don't forget our silent auction sponsored by The Maxillofacial Foundation. Always lots of unique items on which to bid!

I always like to say that one of the best parts of any meeting is the collegiality; whether renewing existing friendships or kindling new ones. We have planned two very special social events to help you do just that. Please join us on Sunday for a very special South Beach

experience and then on Monday as we gather for the banquet to be wined and dined as we create an evening of fun and memories.
Whenever I write a piece such as this for a program book, I always wonder if anyone really reads it. So this year, I am going to test my theory. At any time during the meeting, please feel free to approach me and let me know that you read my welcome address. One of you lucky readers will be eligible for a valuable reward at the banquet.
Once again, thank you for joining us. We recognize the time, effort, and sacrifices it takes to attend. I am certain that AAMP 2019 in Miami will be a memorable experience.

David J. Reisberg, DDS, FACP, FAAMP
President, American Academy of Maxillofacial Prosthetics

PRESIDENT'S BIOGRAPHY

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 the current president of the American Academy of Maxillofacial Prosthetics and past president of 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.

AAMP 2019 Conference Program Chair's Welcome

Bienvenidos a Miami!! On behalf of President David Reisberg and the American Academy of Maxillofacial Prosthetics, I would like to welcome you to the Academy's 66th Annual Scientific Session at the spectacular Eden Roc Hotel. This is such a great venue for the meeting but also adjacent to a host of activities endemic to the Miami South Beach culture.

The next several days will assemble world experts dedicated to patients requiring advanced maxillofacial prosthetic care. The theme of our meeting is "The Changing Art and Science of Maxillofacial Prosthetics." In addition to leaders in our profession, the program will be joined by those in Anaplastology, Imaging Science, Oral and Maxillofacial Surgery, Head and Neck and Reconstructive Surgery and Radiation and Medical Oncology. The additional hands-on workshops will spark your imagination on the latest of offerings to practitioners and patients alike.

I would like to also acknowledge our sponsors who without their support, none of the meeting proceedings would be possible. Our strong partnership with industry also affords our attendees and their patients the best offering for improving the quality and expediency of care for this very special group of patients.

I wish all of you a great experience here and thank you for support of the Academy!

Most Sincerely,
Thomas Salinas, DDS
AAMP Program Chair


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We thank all past AAMP Presidents for their dedication and service

MEETING EVENTS OVERVIEW

Registration Desk Located in the Eden Roc Ballroom Foyer

Saturday, October 26th

7:00am-3:00pm	AAMP Officers & Board of Directors Meeting *Officers and Board Members only*
3:30pm-4:30pm	Industry Presentation
4:30pm-5:30pm	Industry Presentation
5:30pm-7:30pm	Welcome Reception & Poster Session

Sunday, October 27th

7:00am-8:00am	Continental Breakfast with Exhibitors
8:00am-10:05am	Plenary Session
10:05am-10:40am	A.M. Coffee Break (Exhibit Review)
10:45am-1:00pm	Plenary Session
1:00pm-2:00pm	Lunch with Legally Mine
2:00pm-3:00pm	AAMP Business Meeting (Members Only)
5:00pm-10:00pm	AAMP Social Networking Outing Elective Event

Monday, October 28th

7:00am-8:00am	Continental Breakfast with Exhibitors
8:00am–10:15am	Plenary Session
10:15am-10:45am	A.M. Coffee Break (Exhibit Review)
11:00am-1:00pm	Plenary Session
2:00pm-4:30pm	ELECTIVE WORKSHOP
7:00pm-8:00pm	Happy Hour Reception
8:00pm-10:00pm	Presidential Banquet (*Elective Event)*

Tuesday, October 29th

7:00am-8:00am	Continental Breakfast with Exhibitors
8:00am–10:15am	Plenary Session
10:15am-10:45am	A.M. Coffee Break (Exhibit Review)
11:00am-12:55pm	Plenary Session
2:00pm-4:30pm	ELECTIVE WORKSHOP
2:00pm-5:30pm	ELECTIVE WORKSHOP

SCIENTIFIC PROGRAM OVERVIEW

Saturday, October 26th

07:00 – 3:00	**AAMP Officers & Board of Directors Meeting** *Officers and Board Members only*
3:30pm-4:30pm	**Industry Presentation: Brian Pikkula-** *Mitigation of Mucositis and Xerostomia Peri- and Post- Cancer Therapy* *Location: Eden Roc Ballroom*
4:30pm-5:30pm	**Industry Presentation: Claudio Brenner-** *Functional Rehabilitation with Microvascular Flaps and Zygomatic & Conventional Implants* *Location: Eden Roc Ballroom*
5:30pm-7:30pm	**Welcome Reception & Poster Session** *Location: Eden Roc Ballroom / Exhibit Hall*

Sunday, October 27th

07:00am-08:00am **Continental Breakfast** with Exhibitors
Location: Eden Roc Ballroom / Exhibit Hall

8:00am-8:15am **David Reisberg**
Welcome Address
Location: Eden Roc Ballroom

The Changing Art and Science of Maxillofacial Prosthetics

Moderator: Joe DiFazio

8:15am-9:00am **Kevin Arce**
Maxillofacial Reconstruction: A Surgical Oncologists' Perspective

9:05am-9:35am **Hameed Khan**
30 Year History of iRSM

9:40am-10:05am **Suresh Nayar**
The Medical Modeling Research Laboratory

10:05am-10:40am **Coffee Break with Exhibitors**

Moderator: William O. "JR" Wilson

10:45am-11:30am **Luis Vega**
Clinical Versatility of the Zygomatic Implant

11:35am-12:15pm **Devin J. Okay**
A Comprehensive Prosthodontic Review to Maxillomandibular Free Flap Reconstruction

12:20pm-1:00pm **Robert Foote**
Radiation Oncology in Consideration of New Treatment Concepts

1:00pm-2:00pm **Legally Mine Luncheon**
Understanding Legal Tools: Keys to Lawsuit Prevention, Tax Reduction & License Protection
Location: Eden Roc Ballroom

2:00pm-3:00pm **AAMP Business Meeting**
Members Only
Location: Eden Roc Ballroom

5:00pm-10:00pm **AAMP Social Networking Outing & Dinner (elective)**
Location: Meet in Lobby of The Eden Roc

Monday, October 28th

7:00am-8:00am **Continental Breakfast with Exhibitors**
Location: Eden Roc Ballroom / Exhibit Hall

8:00am-8:15am **Announcements**
Location: Eden Roc Ballroom

Moderator: Ruth Aponte-Wesson

8:15am-9:00am **Jonathan Morris**
Craniofacial Applications of 3D Printing: A Radiologist's Perspective

9:05am-9:40am **Rodrigo Salazar Gamarra**
Readily Accessible 3D Technologies

9:45am-10:15am **Suresh Nayar / Lindsay McHutchion**
Lets Get Digital - in Maxillofacial Prosthetics!

10:15am-10:45am **Coffee Break with Exhibitors**

Moderator: James Kelly

11:00am-11:20am **David Reisberg / John M. McFall**
President's Award/Presentation: The Art and The Science of Maxillofacial Materials

11:25am-11:35am **Pattii Montgomery**
Tracheostomal Customization: An MD Anderson Experience 2006-2019

11:40am-12:05pm **Theresa Hofstede**
Pre-Harvest Implants in Fibula Flap of Mandibular Reconstruction

12:10pm-1:00pm **Steve Warren / Lawrence Brecht**
The Surgical/Prosthetic Roles in Cleft Palate Management

2:00pm-4:30pm **ELECTIVE WORKSHOP** - Cochlear VistaFix Hands-On Surgical Techniques and Placement of Osseointegrated Implants
Location: Rivo Alto

7:00pm-8:00pm **Happy Hour Reception**
Location: Eden Roc Ballroom / Exhibit Hall

8:00pm-10:00pm **AAMP Presidential Reception**
(Elective event)
Location: Eden Roc Ballroom / Exhibit Hall

Tuesday, October 29th

7:00am-8:00am **Continental Breakfast with Exhibitors**
Location: Eden Roc Ballroom / Exhibit Hall

8:00am-8:05am **Announcements**
Location: Eden Roc Ballroom

Moderator: Evan Rosen

8:10am-8:40am **Suzanne Verma**
"Re-Constructing" the Plan: Interdisciplinary Solutions for the Facially Disfigured Patient

8:45am-9:45am **Thabo Beeler**
Digitals Humans at Disney Research

9:50am-10:15am **Avinash Bidra** *Implants in the Pterygoid Region for Rehabilitation of Maxillofacial and Edentulous Patients*

10:15am-10:45am **Coffee Break with Exhibitors**

Moderator: Martin Osswald

11:00am-11:10am **Akanksha Srivastava**
Application of Biosynthetic Skin Substitute for Intra-Oral Oncologic Surgical Defects

11:15am-11:25am **Sarah Kay Youny Lee**
The Changing Face of Survivorship and Orofacial Rehabilitation

11:30am-11:55am **Mark Chambers**
The Oral Microbiome

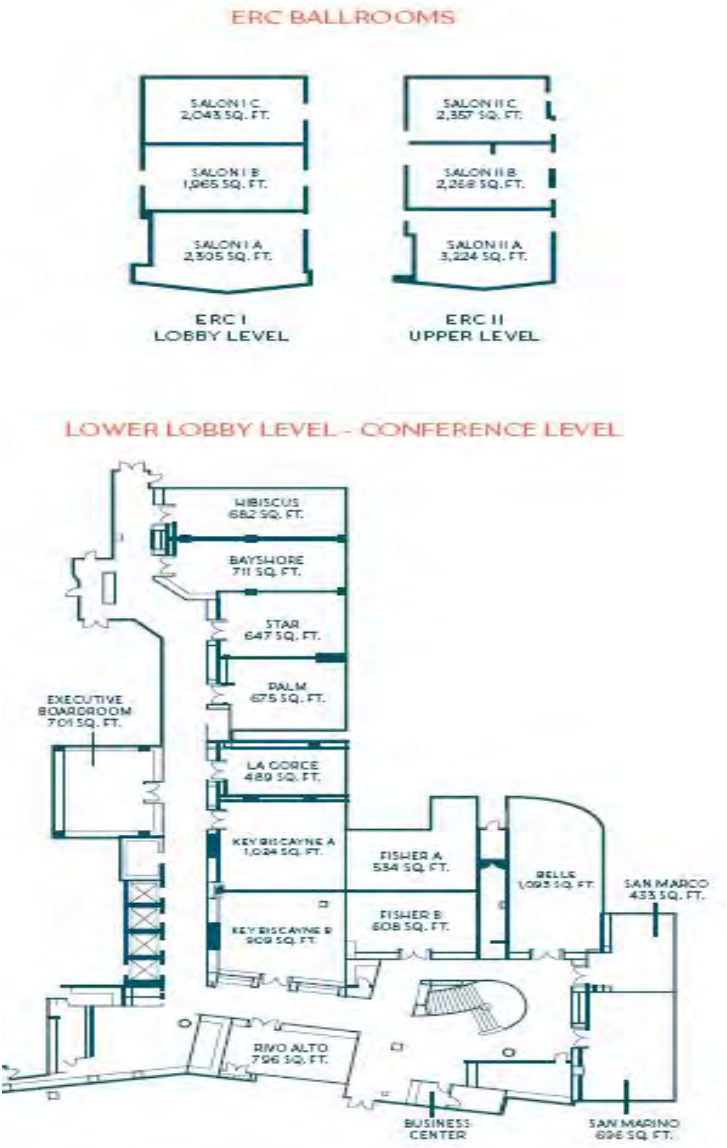
12:00pm-12:25pm **Christian Edgar Davila**
The Digital Private Practice Maxillofacial Prosthodontist

12:30pm-12:55pm **Chad Rasmussen**
A Facial Landmark Approach to Complex Rehabilitations

2:00pm-5:30pm **ELECTIVE WORKSHOP-Lawrence Brecht:**
Hands on Cleft Palate NasoAlveolar Molding (Limited Attendance 10 Particpants)
Location: Key Biscayne B

2:00pm-4:30pm **ELECTIVE WORKSHOP- Factor II:**
SILIMPLICITY! The Fusion of Silicone and Simplicity in Keeping it Simple (Limited Attendance 12 Participants)
Location: Key Biscayne A

EDEN ROC HOTEL FLOORPLAN



Sunday, October 27th

8:00am-8:15am **Welcome Address: David Reisberg**
Location: *Eden Roc Ballroom*

Moderator: Joe DiFazio

8:15am-9:00am **Kevin Arce**
Oral and Maxillofacial Surgeon
Head and Neck Cancer Center
Mayo Clinic
Rochester, MN USA

Maxillofacial Reconstruction: A Surgical Oncologists' Perspective

Head and Neck Surgery has taken on significant advances in the last decade. Some of this renaissance has been created as the greater demand for tumor ablative surgery and adjuvant therapy. The use of surgical design and simulation has propelled much of this effort along with improved technique with microvascular surgery. This presentation will outline the hallmark of treatment and sequencing seen at the Mayo Clinic with regard to these efforts.

9:05am-9:35am **Hameed Khan**
Executive Director
Institute for Reconstructive Sciences in Medicine
Edmonton, AB Canada

30 year history of iRSM

Dr. Khan will explore the origins, the ethos and vision that iRSM has and the interdisciplinary nature of the care provided in iRSM spanning numerous disciplines including surgery, medicine, maxillofacial prosthodontics, rehabilitation medicine, engineering, computing science to name a few. The collaborative spirit also spans across clinical care, research, education and training in reconstructive medicine and

technology. In doing so, Dr. Khan will discuss the structure of healthcare in Canada and outline the funding and governance models currently employed at IRSM. The presentation will also discuss potential future directions for IRSM**.**

9:40am-10:05am **Suresh Nayar**

Associate Professor, Division of Otolaryngology Head and Neck Surgery, Department of Surgery, Faculty of Medicine and Dentistry, University of Alberta
Maxillofacial Prosthodontist, Institute for Reconstructive Sciences in Medicine (iRSM), Alberta Health Services/Covenant Health/University of Alberta
Edmonton, AB Canada

The Medical Modeling Research Laboratory

The Medical Modelling Research Laboratory (MMRL) at the Institute for Reconstructive Sciences in Medicine is the flagship digital and additive manufacturing innovation hub. Since its inception in 2005, the MMRL has been at the cutting edge of collaborative work involving several faculties of the University of Alberta including the faculties of Medicine and Dentistry, Rehabilitation Medicine, Engineering, and Art & Design. It has been at the forefront in clinical application of technology, research and education and serves as the nidus in the development of technological solutions in medicine. Through this, it has established itself as an international leader in surgical design and simulation technologies in medicine with specific clinical and research applications in head and neck surgery, neurosurgery, cardiology, orthopaedic surgery to name a few.
This presentation provides a glimpse of the origins, its current state and the future of the MMRL!

10:05am-10:40am A.M. Coffee Break (Exhibit Review)

Moderator: William O. "JR" Wilson

10:45am-11:30am **Luis Vega**

Associate Professor, Oral & Maxillofacial Surgery
Program Director, Oral & Maxillofacial Surgery
Residency Department of Oral and Maxillofacial
Surgery and Dentistry
Vanderbilt University
Nashville, TN USA

Clinical Versatility of the Zygomatic Implant

The reconstruction of the severely atrophic maxilla or acquired maxillary defects is among the most challenging areas of oral and maxillofacial reconstruction. Multiple algorithms and techniques have been described but the best reconstruction method remains controversial. Zygomatic implants are a graftless solution to the lack of maxillary bony support for prosthetic reconstruction in these patients. This lecture will illustrate in a case-based format the versatility of the zygomatic implant as a foundation for the dental rehabilitation of the maxilla.

11:35am-12:15pm **Devin J. Okay**

Director, Division of Prosthetics
Department of Otolaryngology–Head and Neck
Surgery, Mount Sinai Beth Israel
New York, NY USA

A Comprehensive Prosthodontic Review to Maxillomandibular Free Flap Reconstruction

Microvascular free flap surgery with consideration toward prosthodontic rehabilitation is critical to functional recovery after reconstruction of acquired jaw defects. Disease factors contributing to size and location of the defect with the anticipated functional loss are cornerstones to the restorative decision-making (RDM) process prior to ablative and reconstructive procedures.
Topics to review include;
-Multidisciplinary care, patient complexity and a defect oriented

approach to reconstruction and rehabilitation
-Mandibular segmental defects and height discrepancy of surgical reconstruction to native mandible
-Maxillary classification of defects and treatment algorithms
-Implant success vs. prosthetic success
-Potential for immediate restoration
-Problems, pitfalls and outcome assessment
Digital transformation of surgical reconstruction and prosthodontic rehabilitation solves problems often utilizing virtual surgical planning (VSP) coupled with their computer aided manufactured devices at donor and recipient sites. These advancements provide many patient benefits, especially those with a large or complex defect. Osseointegration and a prosthetically driven approach to fibula free flap reconstruction is at the heart to an optimal functional outcome. Furthermore, techniques to sequence implant placement and patient management is a present topic for discussion.
-Implant success vs. prosthetic success

12:20pm-1:00pm **Robert Foote**
Hitachi Professor of Radiation Oncology Research
Mayo Clinic
Rochester, MN USA

Radiation Oncology in Consideration of New Treatment Concepts

Proton beam therapy is an emerging new technology in the treatment of head and neck cancer. Proton beams have physical properties that differ from conventional x-rays, also known as photons, which are currently used to treat head and neck cancer. The physical properties of proton beams give them an advantage over photons in terms of a more targeted dose distribution of ionizing radiation. Proton beams deliver a lower dose to the mandible, maxilla, parotid glands, submandibular glands, floor of mouth, and oral tongue while delivering the same dose to the cancer target as photon beams. This results in a lower incidence and severity of acute and late adverse events such as osteoradionecrosis, xerostomia, dental caries, altered taste, and painful mucositis requiring narcotic pain medication and leading to

dehydration, weight loss, malnutrition, hospitalization and feeding tube placement. Patients with oropharynx, salivary gland and skin cancers are examples of appropriate candidates for proton beam therapy.

Standard prefabricated or customized oral positioning devices are sometimes used to displace the mandible, maxilla, buccal mucosa, oral tongue and/or lips away from the radiation beams as another method to lower radiation dose to these structures and reduce the incidence and severity of acute and late adverse events. Our colleagues in Esthetic and Prosthetic Dentistry have been very helpful in the design and fabrication of customized oral positioning devices. These devices need to be 1) fabricated simply and efficiently, 2) made of material that has a uniform density with a known relative proton stopping power, 3) capable of aligning oral structures consistently and easily, 4) opaque for CT imaging, 5) comfortable for patient use, and 6) economical. When the relative proton stopping power of the material is unknown, multiple proton beams are used to treat around the device rather than through the device increasing the complexity and length of treatment. When the relative proton stopping power is known, proton beams can be used to treat through the device allowing the use of fewer beams and shortening the treatment time. This will simplify proton treatment planning which will shorten the treatment time for each patient and reduce the need for repetitive treatment planning.

1:00pm-2:00pm **Legally Mine Luncheon-**Understanding Legal Tools: Keys to Lawsuit Prevention, Tax Reduction & License Protection
Location: *Eden Roc Ballroom*

Monday, October 28th

8:00am-8:15am **Announcements**
Location: *Eden Roc Ballroom*

Moderator: Ruth Aponte-Wesson

8:15am-9:00am **Jonathan Morris**
Radiologist
Radiology Department
Mayo Clinic
Rochester, MN USA

Craniofacial Applications of 3D Printing: A Radiologist's Perspective

Now more than ever, the demand for support from digital simulation and surgical design for craniofacial applications has steadily increased. This has resulted in more efficient use of time in operating room settings and that of handling complex care. The specific use of institutional three-dimensional printing has made surgical support feasible to allow short turnaround times by production of models which help guide the surgical team. This discussion will explore the various frontiers that a radiologist foresees by supporting a host of surgical teams at the Mayo Clinic.

Jonathan Morris is a radiologist at the Mayo Clinic who is board certified in Neuroradiology and Diagnostic Radiology. He is an assistant professor and consultant who is also director of an Anatomic Modelling/Rapid Prototyping laboratory that support significant demand from a multitude of surgical teams including that of maxillofacial surgery and Head and Neck surgery. He has been honored with several awards of distinction from the Radiological Society of North America along with the American Society of Neuroradiology. His research Interests are neuroradiology and minimally invasive spine intervention

9:05am-9:40am **Rodrigo Salazar Gamarra**

Professor
Peruvian University of Applied Sciences (UPC)
Lima, Peru

Readily Accessible 3D Technologies

3D Technologies have been changing realities for Maxillofacial Prosthodontics and Anaplastology workflows since the last decades.
Nowadays, even undeveloped contexts can enjoy the benefits of improving the quality of life of people through these disruptive integrated resources.
But despite the huge evidence around science and technology, that would justify the implementation of such innovations in applied systems for healthcare, there are still gaps in most health systems in the way decision makers translate and apply such implementations into a measurable desired impact. Experience, investment priorities, chain supply, policies, political decision, and multiple variables are some of the difficulties that maintain this 3-decade evolution through hardware, software, biomaterials, and applied solutions, just as a dream for some realities.
Other of the big issue around advanced technologies for maxillofacial prosthodontics is the high cost of all hardware, software, importation taxes, annual licenses, importation taxes, training courses, etc. Hundreds of thousands of dollars may be necessary and most hospitals or centers worldwide cannot prior this amount of money for this purpose. It is important to mention that it does not matter how much you pay, there is still no complete automatic process of creating 3D Facial Prosthesis, but yes, several invasive steps and production process has been simplified. Meanwhile, accessible 3D technologies will be a mix of technological and analogical way to work, but the most important is for them to be accessible in cost and learning curve.
During this presentation joint with our challenges, I would share our team experience at Paulista University (UNIP) and OREMA Foundation with the usage of 3D accessible technologies through the PlusID(+ID) Methodology, which uses smartphones, open source software, and accessible 3D printers.

9:45am-10:15am **Suresh Nayar**

Associate Professor, Division of Otolaryngology Head and Neck Surgery, Department of Surgery, Faculty of Medicine and Dentistry, University of Alberta;
Maxillofacial Prosthodontist, Institute for Reconstructive Sciences in Medicine (iRSM), Alberta Health Services/Covenant Health/University of Alberta
Edmonton, AB Canada

Lindsay McHutchion

Anaplastologist
Institute for Reconstructive Sciences in Medicine
Edmonton, AB Canada

Let's Get Digital - in Maxillofacial Prosthetics!

The advent of advanced digital technologies and surgical design and simulation has enabled reconstruction and rehabilitation in head and neck oncology management to be raised to new levels of precision and accuracy. The integration of digital technology has allowed for innovation in jaw reconstruction/rehabilitation and facial prosthetic treatment pathways. To achieve this level of sophistication, along with the convergence of various technologies, it is important that the planning and management is carried out by a team of specialists in various fields. However, it is often seen that practical details such as the digital tools, CAD techniques, and design considerations involved are often excluded from reports on these processes. This presentation will showcase the design process involved at several stages of jaw reconstruction/rehabilitation and facial prosthetic treatment, emphasizing the steps involved, and highlighting key design decisions along the way.

10:15am-10:45am Coffee Break

Moderator: James Kelly

11:00am-11:20am **David Reisberg**
Director, Dental Section/Prosthodontics/
Maxillofacial Prosthetics
The Craniofacial Center (MC588)
The University of Illinois Hospital and Health
Sciences System
Chicago, IL USA

John M. McFall
CEO
Factor II Inc.
Lakeside, AZ USA

President's Award/Presentation: The Art and The Science of Maxillofacial Materials

The American Academy of Maxillofacial Prosthetics President's Award

The President's Award recognizes an individual who is not a member of The Academy but has exhibited strong support for its mission and has made a significant contribution to the discipline of Maxillofacial Prosthetics.

We are pleased to announce that the first recipient of this award is John M. McFall.

11:25am-11:35am **Pattii Montgomery**

Anaplastologist
Past President, International Anaplastology Association
MD Anderson Cancer Center
Houston, TX USA

Tracheostomal Customization: An MD Anderson Experience 2006-2019

Patients who have undergone a total laryngectomy breathe through a surgically created tracheostoma. An option for communication following a total laryngectomy involves use of a tracheoesophageal prosthesis that is surgically placed into the tracheoesophageal puncture (TEP). Those with a tracheostomal defect may experience compromised breathing and speech due to the associated changes in airflow patterns. Prosthetic customization of the peristomal anatomy restores the normal airflow patterns required for proper breathing. Custom-molded housings have also been produced to conform to the irregular contours of the peristomal neck in some patients to attempt to eliminate problems associated with peristomal adherence. Although this has improved tracheostoma valve adherence for some patients, the devices are frequently large, cumbersome, and esthetically unattractive. Additionally, they often restrict head and neck movement and more costly than the standard housing. Although the use of the tracheostoma breathing valve allows for hands-free speech for patients who communicate with use of a tracheoesophageal prosthesis, we found that only a little more than half of TE speakers can successfully wear this device because of problems with attachment to the neck. In one of our past studies (Lewin J et al) it was found that 91% of TE speakers were unable to use the tracheostoma breathing valve with any form of peristomal attachment successfully. As previously noted, the most common reason for failure with the peristomal attachment in our patients was their inability to maintain the adhesive seal that attaches the housing to the peristomal skin. The problem is exacerbated in those patients who have large or deep-set stomas, irregular peristomal topography, and allergic reactions to adhesives. Problems can arise from an oversized and/or irregularly formed tracheostoma, hampering the temporary occlusion necessary

for sufficient speech production. As an alternative to a surgical correction of the tracheostoma, an individually adjusted stoma silicone prosthesis may be used. Fabrication of a customized tracheostomal prosthesis requires the clinician to select a method of impression making and restorative material with which to fabricate the prosthesis onto irregular anatomic contours. This presentation will address the customization of over 250 tracheostomal prostheses at MD Anderson from 2006-2019 using nonrigid, soft, and strap-free biomaterials.

11:40am-12:05am **Theresa Hofstede**

Associate Professor
Department of Head and Neck Surgery
Division of Surgery
The University of Texas
MD Anderson Cancer Center
Houston, TX USA

Pre-Harvest Implants in Fibula Flap of Mandibular Reconstruction

Microvascular reconstruction using fibula free flap is routinely used for mandibular reconstruction in head and neck cancer. Optimal oral rehabilitation of the osteocutaneous free flap requires the use of endosseous implants to support prostheses. Within the last 30 years, many advances in head and neck surgical techniques, plate technology, virtual planning, and microvascular surgery have improved the functional restoration in this patient population. Previous studies from our group as well as other institutions have demonstrated the feasibility of prosthetic rehabilitation of the neo-mandible. The majority of patients undergoing such an extensive resection often need radiation which can compromise the viability of the implants. However, with the introduction and improved technology with imaging and preoperative 3-dimensional planning, we have started placing dental implants at the time of the free osteocutaneous flap harvest. The introduction of the virtual planning and 3-D printing technology provides reconstructive surgeons with precise cutting guides and templates to cut the jaw and fibula to match precisely with a titanium plate customized to the patient's native mandible or maxillae. Now,

using the same technology, the custom designed guides can also incorporate dental implant placement simultaneously. By placing the implants at the time of the reconstruction, this can potentially save the patient an additional operation to place the implants, and avoid the impact of irradiated bone, since the osteocutaneous flap has not been subjected to radiation at the time of placement. This presentation will address the pre-harvest implant placement technique and introduce a new study in examining the outcomes of immediate placement of osseointegrated dental implants combining 3-D printing technology for mandible reconstruction with subsequent prosthetic rehabilitation as compared to those having the implants placed in a secondary procedure. It is expected that the placement of immediate dental implants at time of harvest will enhance the prosthetic rehabilitation outcomes of an often overlooked patient population due to reducing the risk of post-operative radiation-induced osteonecrosis.

12:10pm-1:00pm **Stephen M. Warren**
Lenox Hill Hospital
New York, New York USA

Lawrence Brecht
Institute of Reconstructive Plastic Surgery
New York University-Langone Medical Center
Jonathan & Maxine Ferencz Advanced Education Program in Prosthodontics
New York, NY USA

The Surgical/Prosthetic Roles in Cleft Palate Management

Most clinicians would agree that treating a milder case is easier than treating a more complex case. Moreover, the results are often better. This idea is not new in cleft surgery and presurgical treatments have been around for more than 300 years. Today, presurgical infant orthopedic (PSIO) techniques include lip taping, maxillary plates, the Latham device, as well as nasoalveolar molding (NAM). Collectively, these techniques are designed to lessen the severity of a cleft prior to primary surgery.

In our opinion, primary cleft care should include treatment of the cleft

lip, dentoalveolar cleft, and the associated cleft nasal deformity. Except in the mildest cases of minorform cleft lips, repair of the dentoalveolus and excellent nasal outcomes are not possible without presurgical repositioning of the dentoalveolus and nasal cartilages. Unlike other PSIO techniques, NAM is designed to simultaneously mold the dentoalveolus and reshape the nasal cartilages.

NAM improves dentoalveolar alignment, reduces dentoalveolar cleft width, and enables primary gingivoperiosteoplasty (GPP), which results in successful bone formation in the majority of patients. While primary repair of the dentoalveolus is invaluable, it is important to note that unsuccessful dentoalveolar bone formation does not equate with ‘‘no bone formation.’’ Instead, even the unsuccessful primary GPP produces dentoalveolar bridging albeit with inadequate bone volume to support the eruption of the adult lateral incisor and/or canine. The bony bridging of the unsuccessful primary GPP, however, still stabilizes the premaxilla allowing for a functional occlusion and development of healthy premaxillary bone. Moreover, the downward migration of primary teeth through the incomplete bony bridge of the unsuccessful primary GPP tends to draw the dentoalveolar bone towards the occlusal surface. We find that descent of dentoalveolar bone towards the occlusal surface that accompanies the descent of primary teeth into the dentoalveolar cleft of particular value because it obviates the need for grafting in the most inferior aspect of the dentoalveolus where secondary bone grafting is most susceptible to failure.

Similarly, the literature shows that NAM improves nasal cartilage deformity, nasal symmetry, stretches the nasal mucosal lining, and achieves a nonsurgical elongation of the columella. All these benefits are in line with a tension-stress induced histogenesis, which would suggest that NAM elicits an inductive mechanism to stimulate the activity of immature nasal cells, producing an interstitial expansion that is associated with improvements in nasal morphology. Similar to neonatal auricular cartilage manipulation, active molding and repositioning of the nasal cartilages take advantage of the plasticity of cartilage in the newborn infant. This temporary plasticity of the cartilage (and soft tissues) is due to high levels of hyaluronic acid, a component of the proteoglycan intercellular matrix, found circulating in the infant for several weeks after birth.

In sum, NAM provides a combination of nasal and alveolar molding, which results in measurable long-term benefits to patients with clefts.

Tuesday, October 29th

8:00am-8:05am **Announcements**
Location: Eden Roc Ballroom

Moderator: Evan Rosen

8:10am-8:40am **Suzanne Verma**
Past President-International Anaplastology Association
Assistant Professor/Certified Clinical Anaplastologist
Department of Oral & Maxillofacial Surgery/Texas A&M University College of Dentistry
Dallas, TX USA

"Re-Constructing" the Plan: Interdisciplinary Solutions for the Facially Disfigured Patient

We are all energized to discuss the positive outcomes, the compliant and content patients, and the ideal anatomical defect that yields an esthetic and functional result. But what about the cases that didn't go as planned? The implant failures, the problematic wounds that will not remedy after trying every possible solution, and the non-compliant patient; what did we learn from those experiences?
This presentation will walk through various experiences that our team, as oral maxillofacial surgeon, prosthodontist and anaplastologist has encountered when collectively treating patients with a variety of craniofacial defects. Every unexpected set back was an opportunity to assess the process, revise treatment plans, and formulate new options for the patient using a team approach. Cases that will be discussed will include a variety of operative procedures including microvascular free flap reconstruction, various bone grafting techniques and the use of BMP, digital craniofacial implant planning, and intraoperative navigation for implant placement. Restorative techniques will outline the design and fabrication of custom craniofacial abutments, frameworks, and the creation of implant retained intraoral and facial prosthetic restorations.

8:45am-9:45am **Thabo Beeler**

Principal Research Scientist
Director Capture and Effects
Disney Research Zurich
Zurich, Switzerland

Digitals Humans at Disney Research

Disney Research has been actively pushing the state-of-the-art in digitizing humans over the past decade, impacting both academia and industry. Our longterm vision is to provide technology to acquire the entire likeness of a human at highest quality in order to create the best possible avatars. In this talk I will give an overview of a selected few projects in this area, from research into production. I will be talking about photogrammetric shape acquisition and dense performance capture for faces, eye and teeth scanning and parameterization, as well as physically based capture and modelling for hair and volumetric tissues.

9:50am-10:15am **Avinash Bidra**

Clinical Associate Professor
Director, Post-Graduate Prosthodontics
Reconstructive Sciences
UConn Health
Farmington, CT USA

Implants in the Pterygoid Region for Rehabilitation of Maxillofacial and Edentulous Patients

Placement of implants in the posterior maxilla in maxillofacial patients and edentulous patients is known to be challenging due to the quality and quantity of available bone and the presence of the maxillary sinus. In an attempt to solve these problems, pterygoid implants were introduced in 1989. Though not popularly used, the primary advantage of these implants is their engagement of cortical bone of the pterygoid plates providing excellent skeletal anchorage for prostheses. The primary disadvantage is the associated learning curve, technique sensitivity, absence of tuberosity and anatomic challenges. This presentation will provide a scientific overview as well as present survival data about pterygoid implants and shed light on how they can help patients with maxillofacial defects and edentulous patients.

10:15am-10:45am Coffee Break

Moderator: Martin Osswald

11:00am-11:10am **Akanksha Srivastava**

Research Associate, Oral Oncology and Maxillofacial Prosthodontics
Department of Head and Neck Surgery, MD Anderson Cancer Center Houston, TX USA
Prosthodontist and Implantologist, Cosmetic Dentists of Houston, TX, USA

Application of Biosynthetic Skin Substitute for Intra-Oral Oncologic Surgical Defects

Soft tissue reconstruction of intra-oral oncologic surgical defects can be carried out using various modalities, including primary closure, healing by secondary intention, autologous skin grafts, skin substitutes, and various flaps. Autologous full-thickness or split-thickness skin grafts have been the standard of care for reconstruction of intra-oral defects

that do not demand a free flap reconstruction. However, skin grafts have limited availability and are associated with donor site morbidities including, but not limited to, risk of infection, scarring, and patient discomfort that may last from days to weeks. Biosynthetic skin substitutes have been increasingly used to overcome the disadvantages of skin grafts. Integra® bilayer wound matrix, Integra LifeSciences, Plainsboro, New Jersey, is one such biosynthetic composite graft, which is made of a cross-linked bovine collagen and glycosaminoglycan inner layer, with a polysiloxane outer layer. Integra® regeneration matrix has found wide application at the University of Texas MD Anderson Cancer Center, Houston, TX for reconstruction of intraoral surgical defects that do not mandate a free flap reconstruction. The purpose of this case series presentation is to discuss our experience with the use of biosynthetic skin substitute Integra® bilayer wound matrix, as a one-stage procedure for reconstruction of oral oncologic surgical defects of varying sizes and intra-oral location.

11:15am-11:25am **Sarah Kay Youny Lee**
Senior Associate Consultant
Division of Esthetic and Prosthetic Dentistry
Department of Dental Specialties
Rochester, MN USA

The Changing Face of Survivorship and Orofacial Rehabilitation

In the past decade, the face of survivorship in acquired and developmental diseases and conditions of the head and neck has changed. With the increasing incidence of HPV-related oral cancers and the enduring nature of cleft birth defects, this patient population is increasing and their needs are very specialized. Understanding the nature and circumstances of this change is significant as care from maxillofacial prosthodontics provides a bridge within the gap of the state of being a patient versus being a survivor. This presentation demonstrates how orofacial rehabilitation changes the focus of these patients from the concept of surviving their condition to knowing that there is survivorship. But, it also calls for improvements in integrating an interdisciplinary approach to clinical practice. The importance of

understanding the meaning of today's survivorship lies in the shift in ideology from being alive and surviving, to living and thriving after management of their condition.

11:30am-11:55am **Mark Chambers**

Professor, with award of Term Tenure
Department of Head and Neck Surgery,
Division of Surgery
MD Anderson Cancer Center
Houston, TX USA

The Oral Microbiome

The human mouth hosts a diverse community of bacteria referred to as the oral microbiome. Over 700 bacterial species or phylotypes have been identified in the oral cavity that have a wide variety of functions and importance in maintaining oral health. Over 40% have not been cultured in vitro. Direct analysis of bacterial communities in patients with tumors do not reveal whether observed microbiome profiles reflect secondary overgrowth of certain bacteria with preference to the cancer microenvironment. It is unknown as to the changes in the oral microbial state in cancer patients treated with conformal radiation therapy to the head and neck area compared to pre-statement state. What is known is that there are certain microbial species that amplify post-treatment resulting in radiation-induced caries and increased risk of bone necrosis, i.e., caries forming organisms Mutans Streptococci and Lactobacilli. A change in oral microbiota can occur during various stages of cancer and may contribute to pathogenesis, progression or severity and correspond to a change of oral microbial balance. Recent studies have provided strong evidence of an association between changes in the composition of the oral microbiota in pancreatic and colorectal cancers. The oral cavity also undergoes a number of physiological and cellular alterations during chemotherapy and radiation therapy in cancer patients which can lead to mucosal barrier injury and cause a shift in the balance of oral microbiota. In particular, head and neck cancer patients have chronic oral complications related to cancer therapy. To develop effective prophylactic and antimicrobial therapy interventions for mucositis and other oral complications

related to cancer therapies, the composition and role of oral microbiota needs to be better characterized longitudinally. The purpose of this presentation will be to discuss the current oral microbiome characterization, diversity, risk factors, and association with oral cancer and prevention through case-control and prospective studies.

12:00pm-12:25pm **Christian Edgar Davila**
Prosthodontist
Prosthodontics and Implantology
Tampa, FL USA

The Digital Private Practice Maxillofacial Prosthodontist

This lecture will focus on the use digital dental technology in the field of Maxillofacial Prosthetics in Private Practice. The field of digital intraoral scanning is growing fast as evidenced by the number of available new scanners with more features and benefits. This lecture will demonstrate the use of Digital Intraoral Scanning, Computer-Aided Design (CAD) Software and Computer Aided Manufacturing (CAM) to improve the design and creation of maxillofacial prostheses. It will be shown the benefit of more efficient and predictable results over analog conventional techniques.

12:30pm-12:55pm **Chad Rasmussen**

Senior Associate Consultant, Department of Dental Specialties
Orthodontics and Dentofacial Orthopedics
Mayo Clinic
Rochester, MN USA

A Facial Landmark Approach to Complex Rehabilitations

When treatment planning complex orofacial rehabilitations, use of facial landmarks can provide a framework for maximizing facial harmony. Facial landmarks have been a benefit to orthodontists and oral and maxillofacial surgeons when planning orthognathic surgery, and application of these concepts can be useful to maxillofacial prosthodontists when planning rehabilitation of head and neck cancer patients. The premise of this method is to identify the optimal location of dental and facial skeletal structures unique to each individual, which allows clinicians to make informed treatment plans that best suit the needs of the patient. This lecture will support the use of facial landmarks in conjunction with other traditional methods in planning complex transdisciplinary cases.

OBJECTIVES:
Attendees of this lecture will learn to:
1. Identify landmarks used to evaluate facial harmony in all three planes of space
2. Identify the optimal position of dental and skeletal structures
3. Apply these landmarks in the treatment planning of complex rehabilitations.

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Attendees are cautioned regarding the risks of using limited knowledge when incorporating into their practices techniques and procedures illustrated, discussed, or demonstrated during any American Academy of Maxillofacial Prosthetics conferences.

Sunday, October 27th

Kevin Arce, MD, DMD
Oral and Maxillofacial Surgeon
Head and Neck Cancer Center
Mayo Clinic
Rochester, MN USA

Kevin Arce is Assistant Professor and Consult of Surgery, and Division Chair of Oral and Maxillofacial Surgery, Mayo Clinic College of Medicine. He has interest in maxillofacial reconstruction of benign and malignant pathology. He holds Masters of Clinical Research and Masters of Academic Medicine. He is a Fellow of the American Association of Oral and Maxillofacial Surgery and Diplomate of the American Board of Oral and Maxillofacial Surgery. He also completed a Fellowship in Head and Neck Surgery from Legacy Immanuel Hospital in Portland Oregon. He is a member of the American Head and Neck Society, American Academy of Craniomaxillofacial Surgery, American College of Surgeons, and Association for Academic Surgery.

Hameed Khan, PhD, MBA
Executive Director
Institute for Reconstructive Sciences in Medicine
Edmonton, AB Canada

Dr. Hameed Khan is the executive director at the Institute for Reconstructive Sciences in Medicine (iRSM). He brings over 10 years of experience working in the not-for-profit, private, academic and government sectors within the health-care research and innovation space. Dr. Khan enjoys working with multidisciplinary teams that span the entire health research and innovation continuum to advance patient care and improve patient outcomes. Dr. Khan completed is PhD in biochemistry & molecular biology at Dalhousie University in Halifax and completed a post-doctoral fellowship at the Centre for Applied Genomics in Toronto where he studied the genomics of Autism-Spectrum Disorder. Dr. Khan also went on to complete a master's degree in business administration (MBA) at Memorial University, Canada and subsequently completed executive education programs at Harvard and Wharton Business Schools.

Suresh Nayar, BDS, MDS, MFDSRCS, MRDRCS, MRDRCPS, FDS(Rest Dent)RCS, MPhil

Associate Professor, Division of Otolaryngology Head and Neck Surgery, Department of Surgery, Faculty of Medicine and Dentistry, University of Alberta; Maxillofacial Prosthodontist, Institute for Reconstructive Sciences in Medicine (iRSM), Alberta Health Services/Covenant Health/ University of Alberta
Edmonton, AB Canada

Dr Nayar is an Associate Professor at the University of Alberta and Maxillofacial Prosthodontist at the Institute for Reconstructive Sciences in Medicine (iRSM), Canada. He is the Director of Clinics at iRSM and Site Program Chief at the Misericordia Community Hospital, Alberta, Canada.

He obtained his Masters in Prosthodontics from India in 1997. He obtained further specialist training in the United Kingdom where he was awarded Prosthodontic Specialty Memberships from the Royal Colleges of Edinburgh and Glasgow in 2007 and the Restorative Dentistry Specialty Fellowship of the Royal College of Surgeons of England in 2008. He completed a Research Master of Philosophy degree in 2012.

His current research interest includes patient reported outcome measures and improving quality of life in head and neck cancer patients, use of digital technologies and additive manufacturing in advanced jaw reconstruction and maxillofacial prosthodontics, development of a digital implant impression technique in the fibula, among others.

Luis Vega, DDS
Associate Professor, Oral & Maxillofacial Surgery
Program Director, Oral & Maxillofacial
Surgery Residency
Department of Oral and Maxillofacial Surgery
and Dentistry
Vanderbilt University
Nashville, TN USA

Dr. Luis Vega earned his dental degree from the University of Costa Rica and completed his oral and maxillofacial training at the University of Alabama at Birmingham. He currently serves as Associate Professor and Residency Program Director of the Department of Oral and Maxillofacial at Vanderbilt University Medical Center in Nashville, Tennessee. Dr. Vega's clinical practice covers the full scope of the oral and maxillofacial surgery. His commitment to education has taken him to share his experiences publishing and lecturing at national and international levels especially in the area of TMJ surgery, endoscopy in oral and maxillofacial surgery and zygomatic implants.

Devin J. Okay, DDS
Director, Maxillofacial Prosthodontics
Division of Maxillofacial Surgery
Department of Otolaryngology
Head and Neck Surgery
Mount Sinai Health SystemSurgery,
Mount Sinai Beth Israel
New York, NY USA

Dr. Devin Okay is a graduate of Columbia University-School of Dental and Oral Surgery. He completed his Residency in Prosthodontics at the Veteran Administration-University of California at San Francisco (UCSF) Medical Center.

Dr. Okay attended The University of Texas - M.D. Anderson Cancer Center for Fellowship in Maxillofacial Prosthodontics and Oncologic Dentistry. He is Attending Faculty appointed in the Department of Otolaryngology/ Head and Neck Surgery of the Mount Sinai Health System. Dr. Okay is a Co-founder of the Institute of Head and Neck and Thyroid Disease at Mount Sinai Downtown and also maintains a private practice limited to implant, esthetic and reconstructive dentistry in Manhattan.

Robert Foote, MD
Hitachi Professor of Radiation Oncology Research
Mayo Clinic
Rochester, MN USA

Robert L. Foote, M.D., serves as chair of the Mayo Clinic Cancer Center – Mayo Clinic Rochester Cancer Coordinating Committee. Dr. Foote joined the staff of Mayo Clinic in 1988 and holds the academic rank of professor of radiation oncology, Mayo Clinic College of Medicine and Science. He is recognized with the distinction of the Hitachi Professorship in Radiation Oncology Research.

Dr. Foote earned his B.S. from Brigham Young University and M.D. from University of Utah School of Medicine. He completed an internship at LDS Hospital and a residency in radiation oncology at Mayo Clinic School of Graduate Medical Education. He was a Mayo Foundation Scholar at the University of Florida, Shands Teaching Hospital, where he studied head and neck cancer.

Throughout his training and career Dr. Foote has received many awards and honors, most recently the Mayo Clinic Distinguished Clinician Award and Mayo Clinic Excellence in Leadership. He has also been recognized with the Distinguished Service Award conferred by the American Board of Radiology and the Mayo Fellow Association Teacher of the Year Hall of Fame.

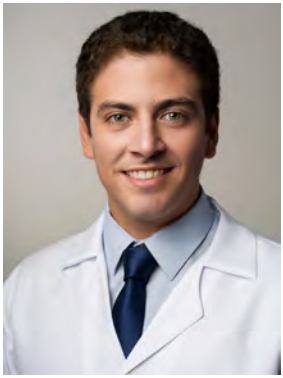
Dr. Foote is a fellow of the American College of Radiology and American Society for Therapeutic Radiology and Oncology. His additional professional memberships include the American Board of Radiology, NCCN Head and Neck Cancer Guidelines Panel, and NRG Oncology Head and Neck Cancer Steering Committee.

Monday, October 28th

Jonathan Morris, MD
Radiologist
Radiology Department
Mayo Clinic
Rochester, MN USA

Dr. Jonathan M. Morris is a Consultant and Assistant Professor in the Department of Radiology at Mayo Clinic. He received his B.S. at Johnson and Wales University in Providence, Rhode Island, completed a post-baccalaureate program at Richard Stockton State College of New Jersey, and completed his M.D. at Howard University College of Medicine, Washington, D.C. He completed his residency at Washington Hospital Center, research fellowship at National Library of Medicine, National Institutes of Health, and his radiology and neuroradiology fellowships at Mayo Clinic School of Graduate Medical Education

Dr. Morris is the Director of the 3D Printing Anatomic Modeling Lab at Mayo Clinic Rochester. His group is especially interested in techniques to incorporate 3D printing into a busy clinical/surgical workflow of a large quaternary referral center. His special interests are in anatomic illustration of patient-specific complex oncologic surgeries through the use of 3D printing for preoperative planning and custom surgical guides and also the use of 3D printing in medical, education, simulation, imaging research, forensic pathology, and development of quality metrics.



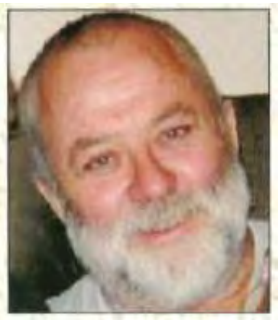
Rodrigo Salazar Gamarra, MD
Professor
Peruvian University of Applied Sciences (UPC)
Lima, Peru

Dr. Salazar has a DDS Background, specialist in Prosthodontics and made his Master and is finishing his PhD at Paulista University (UNIP) in Brazil, both dedicated to research in accessible technologies for maxillofacial prosthodontics. He is a consultant of Technological Innovation for Health, awarded by "MIT Technology Review" as "Humanitarian Innovator Under 35 2018" for Latin America. Acts as Director of Institutional Relations of the Non-profit organization "Mais Identidade (+ ID)" in São Paulo - Brazil and Advisor of Maxillofacial Prosthodontics for OREMA Foundation in Chile, which is an ally of the National Cancer Institute of Santiago de Chile. He is Vice-president of the Latin American Society of Maxillofacial Prosthodontics 2018-2020 and President-elect of the International Association of Anaplastology 2020-2021. He is a professor at the Peruvian University of Applied Sciences (UPC) and has specialized dental practice in Lima.

Lindsay McHutchion, MS, BSc
Anaplastologist
Institute for Reconstructive Sciences in Medicine
Edmonton, AB Canada

Lindsay completed her Master of Science degree through the Biomedical Visualization Program at University of Illinois in Chicago in 2012, specializing in anaplastology. In 2010, she completed her Bachelor of Science degree at University of Alberta with a major in biology and a minor in art and design. Lindsay creates custom facial prostheses for patients who are missing parts of their facial anatomy due to disease, trauma, or congenital conditions.

Lindsay began working at iRSM in 2012. Her interests include the integration of digital technology in treatment of facial prosthetic patients, colour science, and measuring patient outcomes.



John M. McFall
CEO
Factor II Inc.
Lakeside, AZ USA

John M. McFall is the Executive Director of Factor IIInc., founded in August of 1978 tosupply reconstructive clinicians with a consolidated supply source of materials, equipment and information. John trained atThe University oflexas, M.D. Anderson Hospital in 1976. Factor II has been involved with all of the major manufacturers inkeeping pace with the development of silicone elastomers; Companies such as: Dow Corning, Nusil Silicones, Rhodia Silicones, Applied Silicones, GE silicones and the latest player to addto this list is now Bluestar Silicones. John believes that the future of this specialty lies in education and intends to pursue this concept by bringing the manufacturer closer to the lab.

David Reisberg, DDS, FACP, FAAMP
Director, Dental
Section/Prosthodontics/Maxillofacial Prosthetics
The Craniofacial Center (MC588)
The University of Illinois Hospital and Health Sciences System
Chicago, IL USA

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 the current president of the American Academy of Maxillofacial Prosthetics and past president of 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.

Pattii Montgomery
Anaplastologist
Past President, International
Anaplastology Association
MD Anderson Cancer Center
Houston, TX USA

Pattii C. Montgomery is an Anaplastologist in the Section of Oral Oncology and Maxillofacial Prosthodontics, Department of Head and Neck Surgery, at The University of Texas, MD Anderson Cancer Center (MDACC) in Houston, Texas. Since 2003, Pattii employs her extensive experience in graphic design, graphics software and digital imaging in the design and fabrication of facial and digit prostheses, custom tracheostoma attachments, nasal stents, and extraoral implant surgical guides. She is highly active in the fellowship program at MDACC training the fellows in color science and facial prosthetics.

Pattii Montgomery is a past president of the International Anaplastology Association. Her research interests include digital imaging and advancing technology in the field of anaplastology to enhance the quality of life for facial prosthetic patients. She has been highly active in biomaterial and outcomes research and publishes in medical and dental journals as well as lectures nationally and internationally. Pattii has more recently been invited as a workshop organizer and instructor to the Chinese Society of Maxillofacial Rehabilitation, Xi'an, China, presenting the color fundamentals for facial prosthetic intrinsic and extrinsic coloring techniques in 3D printed molds. In her off-time, she spoils her grandchildren as much as possible and is an abstract artist exploring inner emotions over shape and form.

Theresa Hofstede, DDS, FACP
Associate Professor
Department of Head and Neck Surgery, Division of Surgery
The University of Texas
MD Anderson Cancer Center
Houston, TX USA

Dr. Theresa Hofstede is an Associate Professor in the Section of Oral Oncology and Maxillofacial Prosthodontics, Department of Head and Neck Surgery, at the University of Texas MD Anderson Cancer Center. She received her Doctorate of Dental Surgery and a General Practice Residency at the University of Western Ontario in London, Ontario, Canada. She received her certificate in prosthodontics from the University of Rochester Eastman Dental Center. After several years of private practice, Dr. Hofstede completed a fellowship in Oral Oncology and Maxillofacial Prosthodontics at the MD Anderson Cancer Center (MDACC). She is currently the director of the fellowship program in Oral Oncology and Maxillofacial Prosthodontics at MDACC and leads the Virtual Planning and 3-D Printing service within the department. Additionally, she is the Chair of the institutional Oral Oncology Symposium (currently organizing her fourth Symposium scheduled May 14-16, 2020). Dr. Hofstede is a diplomate of the American Board of Prosthodontics. She is a fellow in the American College of Prosthodontics (ACP) and the American Academy of Maxillofacial Prosthetics (AAMP). Dr. Hofstede serves on the Board of Directors of the AAMP and is the chair of the Education Standard Committee. She is a member of the Appeals Board of the Commission on Dental Accreditation and a Consultant to the American Dental Association (ADA) Council on Scientific Affairs (CSA) cancer research panel. Dr. Hofstede is an active reviewer for the Head and Neck journal reviewing oral rehabilitation manuscripts. Her and her husband, Dhelfor, have two sons one of whom has recently started Texas A&M University.

Lawrence Brecht, DDS
Institute of Reconstructive Plastic Surgery
New York University-Langone Medical Center
Jonathan & Maxine Ferencz Advanced Education Program in Prosthodontics
New York, NY USA

Lawrence E. Brecht, DDS, is the Director of Maxillofacial Prosthetics in at New York University College of Dentistry in the Jonathan & Maxine Ferencz Advanced Education Program in Prosthodontics. He has a joint appointment at the Department of Otolaryngology-Head & Neck Surgery of NYU Langone Health. Prior to its dissolution, he was the Director of Craniofacial Prosthetics at the Institute of Reconstructive Plastic Surgery, Hansjörg Wyss Department of Plastic Surgery at NYU Langone for 25 years. In addition, he is the Director of Maxillofacial Prosethetics at Lenox Hill Hospital of the Northwell Health System and is a Visiting Professor at MD Anderson Cancer Center in Houston, Texas. Dr. Brecht received his DDS from New York University and completed a residency at Boston's Brigham & Women's Hospital and a Fellowship at Harvard School of Dental Medicine. He then earned his Certificates in both Prosthodontics, as well as Maxillofacial Prosthetics from the New York Veterans Administration Hospital. In addition to memberships in many prosthodontic organizations, he is a past-president of the Greater New York Academy of Prosthodontics as well as a past-president of the American Academy of Maxillofacial Prosthetics. Currently, he serves as the President of the Maxillofacial Foundation. He is a frequent contributor to the plastic and maxillofacial prosthetics literature and serves as a reviewer for several prosthodontic and surgical journals. He is one of the developers of nasoalveolar molding (NAM) for early cleft management and the "Jaw-in-a-Day" (JIAD) concept for reconstruction of the mandible and maxilla. Dr. Brecht serves on the Medical Advisory Board of NextGenFace, a charitable organization that supports children with craniofacial conditions and their families. He also maintains a practice limited to prosthodontics and maxillofacial prosthetics in New York City.

Stephen M. Warren, MD, FACS
Lenox Hill Hospital
New York, NY USA

Dr. Stephen M. Warren is a tenured Associate Professor of Plastic Surgery, Associate Professor of Oral & Maxillofacial Pathology, Radiology and Medicine, past Director of the Variety Center for Craniofacial Surgery, and past Director of the Craniofacial Surgery Fellowship program at NYU Langone Medical Center. Dr. Warren trained in plastic surgery at Harvard Medical School and completed his fellowship in craniofacial surgery at the Institute of Reconstructive Plastic Surgery. Dr. Warren is a Diplomate of the American Board of Plastic Surgery and a Fellow of the American College of Surgeons. He is a member of 22 professional societies, an ad hoc reviewer for 22 scientific journals, and on the editorial boards of numerous surgical journals. He has authored two hundred textbook chapters, clinical, and scientific articles. He has trained 50 research and clinical fellows. Dr. Warren is frequently lecturing nationally and internationally on cleft and craniofacial surgery, tissue engineering, and regenerative medicine.

Tuesday, October 29th

Suzanne Verma, MAMS, CCA
Past President – International
Anaplastology Association
Assistant Professor/Certified Clinical Anaplastologist
Department of Oral & Maxillofacial Surgery/Texas
A&M University College of Dentistry
Dallas, TX USA

Suzanne Verma is a Certified Clinical Anaplastologist, and Assistant Professor with the department of Oral & Maxillofacial Surgery at Texas A&M College of Dentistry in Dallas, Texas. Suzanne received her Bachelors' in Biological Pre-Medical Illustration from Iowa State University, and a Masters in Biomedical Visualization, with emphasis in Facial Prosthetics from University of Illinois at Chicago (UIC). Her clinical experiences include UIC's Craniofacial Center, University of Nebraska Medical Center, Morriston Hospital in Swansea, Wales, UK, and COMPRU (IRSM) in Edmonton, Alberta Canada. Her research interests on which she has lectured nationally and internationally include; Applications of navigational surgery in extra oral implant placement and Incorporations of advanced technology in craniofacial reconstruction. Suzanne is an active member of numerous field oriented associations and inducted as an honorary member of the Omicron Kappa Upsilon National Dental Honor Society. Ms. Verma has served as Vice President of the Board for Certification in Clinical Anaplastology and Past President of the International Anaplastology Association.

Thabo Beeler, MD
Principal Research Scientist
Director Capture and Effects
Disney Research Zurich
Zurich, Switzerland

Thabo Beeler is a Principal Research Scientist at Disney Research in Zurich, where he is heading the Capture and Effects group and leading the research initiative on Digital Humans. For his contributions to markerless facial performance capture, he just received a Technical Achievement Award of the Academy of Motion Pictures in 2019. In 2018 he was awarded the Eurographics Young Researcher Award for and prior to that he obtained his PhD from ETH Zurich, for which he was awarded with the Eurographics PhD award in 2013. He was also awarded the ETH medal (highest possible distinction) for his master thesis by the Swiss Federal Institute of Technology. Over the past decade, Thabo has been working on digital humans, focusing on high-quality facial geometry reconstruction and dense performance capture. He has published several papers on these topics and has contributed to different feature films, advancing the state-of-the-art on what is considered the holy grail of visual effects.

Avinash Bidra, BDS, MS, FACP
Clinical Associate Professor
Director, Post-Graduate Prosthodontics
Reconstructive Sciences
UConn Health
Farmington, CT USA

Dr. Bidra is a Board Certified Maxillofacial Prosthodontist and Director of the Prosthodontics Residency Program at UCONN School of Dental Medicine. He maintains a part time private practice restricted to Implant Surgery and Prosthodontics in Meriden, CT. He has lectured at national and international meetings, as well as published extensively in international scientific journals. He has developed diagnostic and treatment protocols for full arch fixed implant prostheses that are used by many clinicians as well as prosthodontics programs in the United States. He is a co-inventor of an implant design and is the inventor of a new implant prosthetic component for full arch fixed prosthesis that is currently sold in the US.

Akanksha Srivastava, BDS, MSc, MDSc, FACP, FRCD(C)
Research Associate, Oral Oncology and Maxillofacial Prosthodontics
Department of Head and Neck Surgery, MD Anderson Cancer Center
Prosthodontist and Implantologist
Cosmetic Dentists
Houston, TX, USA

Dr. Srivastava earned her BDS degree with a Dean's gold medal of honor from Pd. Dr. D.Y. Patil University, Navi Mumbai, India. She then went on to pursue a Masters of Science degree at McGill University, Montreal, Canada where she focused her research program on health economics data for implant treatment. She completed her post-graduate Prosthodontics, Implant surgery and Masters in Dental Science training from University of Connecticut. She further pursued a fellowship in Oral Oncology and Maxillofacial Prosthodontics from University of Texas MD Anderson Cancer Center. Dr. Srivastava is dual boarded by the American Board of Prosthodontics and the Royal College of Dentists of Canada. She has over 40 published abstracts, books and manuscripts, and has won numerous awards including a prestigious Programme de Bourses d'Excellence pour Étudiants Étrangers scholarship from the Quebec government for her PhD training. Dr. Srivastava is currently finishing her PhD research focused on oral cancer morbidities, in collaboration between McGill University and MD Anderson Cancer Center, while practicing as a part-time consultant Prosthodontist and Implantologist in Houston, TX.

Sarah Kay Youny Lee, DDS, MS, FACP
Senior Associate Consultant
Division of Esthetic and Prosthetic Dentistry
Department of Dental Specialties
Rochester, MN USA

Dr. Lee is a graduate of the University of North Carolina (UNC) School of Dentistry. She completed her general practice residency at the University of Michigan and practiced in public health dentistry. She then completed her advanced prosthodontics training and earned a Master's Degree in Oral Biology from UNC. Her Maxillofacial Prosthetics and Dental Oncology fellowship was completed at Mayo Clinic. Following her training, she serves as a senior associate consultant in the Department of Dental Specialties at Mayo Clinic and the assistant program director of Advanced Prosthodontics at Mayo Clinic.

Mark Chambers, D.M.D, M.S.
Professor, with award of Term Tenure
Department of Head and Neck Surgery,
Division of Surgery
MD Anderson Cancer Center
Houston, TX USA

Dr. Mark S. Chambers is a tenured Professor and clinical investigator in the Department of Head and Neck Surgery, Division of Surgery, and a secondary appointment in the Department of Radiation Oncology, Division of Radiation Oncology, at The University of Texas MD Anderson Cancer Center in Houston, Texas. He also serves as Deputy Chair for the Department of Head and Neck Surgery and Chief of the Section of Oral Oncology. He serves on numerous institutional committees and is Chair of the Institutional Review Board (IRB5) and Associate Designated Institutional Official for ACGME. Dr. Chambers is recognized nationally and internationally as an oral oncologist, maxillofacial prosthodontist, and a funded clinical research investigator with a focus on developing novel therapeutic approaches in reducing burden of oral manifestations of targeted cancer therapy. His clinical research efforts include the conduct of several novel clinical trials evaluating peptides, secretogogues, mucoprotectants, cytokines, and small molecules in the management of treatment-induced salivary dysfunction, mucosal injury, and bone necrosis. Recent interests include biomarker analyses and the oral microbiome influence on cancer development. Hence, a research focus to develop strategies in reducing cancer treatment-related oral morbidity and protocols to prevent or reduce such complications. Dr. Chambers is a past president of the American Academy of Maxillofacial Prosthetics (AAMP). He serves on numerous dental and medical boards to include the ThyCa Medical Advisory Board, NRG Oncology Head and Neck Cancer General Committee, HNC Living Foundation, and multiple editorial boards. Outside of MD Anderson, Dr. Chambers and his wife, RoseMarie, have a breeding and show horse operation on their ranch in Montgomery, Texas.

Christian Edgar Davila, DDS, MS, CDT, FACP, FAAMP
Associate Professor of Prosthodontics
University of Florida
College of Dentistry
Tampa, FL USA

Board certified prosthodontist in Tampa and Clinical Associate Professor at the University of Florida Graduate Prosthodontics. He completed his MSc Degree and Prosthodontic Program at the University of Louisville, Maxillofacial Prosthetics Fellowship at the University of Texas M.D. Anderson Cancer Center and AEGD at Eastman Dental Center. He was staff at H. Lee Moffitt Cancer Center, former Assistant Professor at the University of South Florida College of Medicine and Past President of the Florida Prosthodontic Association. He is a Diplomate of the American Board of Prosthodontics, Diplomate of the American Board of Oral Implantology, Fellow of the American College of Prosthodontists, Fellow of the American Academy of Maxillofacial Prosthetics, and Fellow of the American Academy of Implant Dentistry. He is also a Certified Dental Technician (CDT). He maintains a practice dedicated to Prosthodontics and Implantology with an in-house full service digital laboratory.

Chad Rasmussen, DDS
Senior Associate Consultant, Department of Dental Specialties
Orthodontics and Dentofacial Orthopedics
Mayo Clinic
Rochester, MN USA

Chad Rasmussen trained in orthodontics at Washington Hospital Center and Children's National Medical Center in Washington, D.C. He is a Senior Associate Consultant at Mayo Clinic and is board certified in orthodontics and dentofacial orthopedics. His interests lie in the orthodontic management of cleft and craniofacial disorders as well as orthognathic surgical correction of skeletal dysplasias. Dr. Rasmussen works with colleagues in oral and maxillofacial surgery and maxillofacial prosthodontics in the management of major oral reconstructions secondary to trauma and oral cancer. This lecture will review facial morphology and landmarks used in the treatment planning of interdisciplinary complex orofacial rehabilitation.

Monday, October 28th

Workshop #1

Cochlear VistaFix Hands-On Surgical Techniques and Placement of Osseointegrated Implants

Instructor: John Vogrin Regional Surgical Training Manager
Cochlear Americas
2:00pm - 4:30pm

Cochlear is proud to offer a hands-on training course focusing on both the surgical aspects of craniofacial rehabilitation utilizing osseointegrated implants. Attendees will have the opportunity to demonstrate the recommended surgical aspects on training models while using all of the components necessary to complete a VistaFix system relating to auricular, orbital, nasal and mid-facial prosthetics.
It is our goal to provide the very best information during this workshop, and we encourage any and all comments, feedback and questions during the time we spend together.

Tuesday, October 29th
Workshop #2

Hands on Cleft Palate NasoAlveolar Molding (NAM)

Instructor: Dr. Lawrence Brecht
2:00pm – 5:30pm

Nasoalveolar molding therapy for infants with a cleft lip, alveolus and palate anomaly has matured to a widely employed technique for reducing the severity of the cleft deformity while greatly improving the shape of the nose prior to surgical repair. While its efficacy and benefits have been proven, it remains a fairly labor-intensive technique which is not easily learned through the literature or technique articles alone. This course provides a hands-on step by step review of the basic technique of fabricating a NAM appliance for an infant with a unilateral cleft lip/alveolus/palate. Familiarity with the fundamental aspects of NAM would be beneficial to the attendee

Tuesday, October 29th
Workshop #3

SILIMPLICITY! The Fusion of Silicone and Simplicity in Keeping it Simple

Facilitated by: Factor II
2:00pm – 4:30pm

The goal of this workshop is to demonstrate a number of technique tips, from the many years of clinical experience to the attendees. As in any workshop we are under time restraint, so we have designed this workshop to be filled with demonstrations we have learned to keep the creation of a silicone prosthesis simple. This is not designed as a hands-on workshop but one with discussion and demonstration of the topic "The fusion of silicone and simplicity in keeping it simple''.

OBTURATOR-LIP AND NASAL COMPLEX PROSTHESES IN A PATIENT WITH A PARTIAL RHINECTOMY AND PARTIAL MAXILLECTOMY.

Alshehri, Abdulkareem *, Aponte-Wesson, Ruth
The University of Texas MD Anderson Cancer Center
Division of Surgery, Section of Maxillofacial Prosthodontics & Oral Oncology, UT Texas MD Anderson Cancer Center
Houston, TX

Case Presentation: Background: A maxillary defect post-surgical resection of tumor may lead to palatal insufficiency, swallowing difficulties, hypernasality, and poor intelligibility of speech. Post-maxillectomy defects may be surgically reconstructed using a microvascular free flap or prosthetically rehabilitated with a maxillary obturator prosthesis. Prosthetic rehabilitation of a maxillary defect is achieved in three phases: surgical, interim and definitive obturation. Prosthetic rehabilitation provides many advantages including early detection of recurrence due to the direct visualization of the defect site, minimize the expense and period of the hospital stay and immediate rehabilitation after surgery.

Case report: This clinical report describes the enhanced retention of maxillary obturator prosthesis by engaging the nasal floor with combination lip and nasal prosthesis for a patient with a midfacial defect.

Discussion: Severe atrophic edentulous maxilla with palatal defect presents a clinical challenge to restore due to lack of proper stabilization and retention of the prosthesis. Anterior maxillectomy and tumor ablation surgery at mid face may significantly affect lip position and facial profile.

Conclusion: This report describes the clinical procedure for the prosthetic management using surgical revision to enhance anatomic mechanical retention of anterior maxillectomy defect with oral nasal communication. The obturator prosthesis designed to engage the nasal aperture and combined lip and nasal prosthesis reconstructed mid facial defect.

MORPHOLOGICAL DIFFERENCE OF THE DENTURE SPACE FOR PATIENTS TAKEN WITH AND WITHOUT INSTRUCTION

Awuti, Shataer *, Kelimu, Shajidan, Hattori, Mariko, Sumita, Yuka I
Tokyo Medical and Dental University
Maxillofacial Prosthetics
Tokyo, Japan

Keywords: piezography, denture space, maxillofacial Prosthesis

Purpose/Aim: It is important to consider about denture space in the fabrication of Prosthesis for maxillofacial defect patient. Piezography is a technique used to record the shape and volume of the denture space employing speech function. Although the efficiency of using piezography technique in maxillofacial defect patients was introduced in previous studies, the details of the way how to instruct the patient to pronounce during take piezographic record on maxillofacial patient are still unknown. This study was aimed to examine different morphology of piezographic impression that was taken without or with pronounced instructions.

Materials and Methods: Five edentulous patients with mandibulectomy or glossectomy were participated in the study. The denture space was taken using piezography technique without and with pronounced instruction respectively. The base plate was fitted to the patient before taking piezographic impression. In order to take piezographic impression, the impression material was injected onto the base plate. As the first condition, the list of the syllable was showed to the patient by instructor. The patient was asked to read the syllable on the list without any pronounced instruction until the impression material was set. The procedure was repeated for three times. A computed tomography scanning system (3DX Multi Image Micro CT FPD8) was used to digitize the impression. The impression material was removed then from the base plate after digitizing. As the second condition, the patients were asked to repeat selected syllable one by one after the instructor pronunciation. During pronunciation, the lip movement was showed to patient clearly by instructor. Three-dimensional surface of morphology for each impression was obtained. The occlusal surface was reproduced and the volume of the piezographic impression and the area of the occlusal surface on the piezographic impression taken with and without instruction were calculated by 3D evaluation software (GOM Inspect V8). The Wilcoxon signed-rank test was used to compare between the two conditions ($P<0.05$).

Results: The median volume of the denture space with and without instruction were 14503 mm3 and 12134 mm3 respectively. The median of the occlusal area on the denture space taken with and without instruction were 909.5 mm2 and 668.4 mm2. There were significant differences both in volume ($P=0.043$) and the occlusal area ($P=0.043$) between impressions taken in two conditions.

Conclusions: The result indicated that the pronounced instruction is an important factor to effect the morphology of the denture space.

MANDIBULAR REPROGRAMMING THERAPY, A NOVEL APPROACH FOR A PARTIAL MANDIBULECTOMY PATIENT

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Keywords: Mandibular reprogramming, Mandibular repositioning, Hemi-mandibulectomy

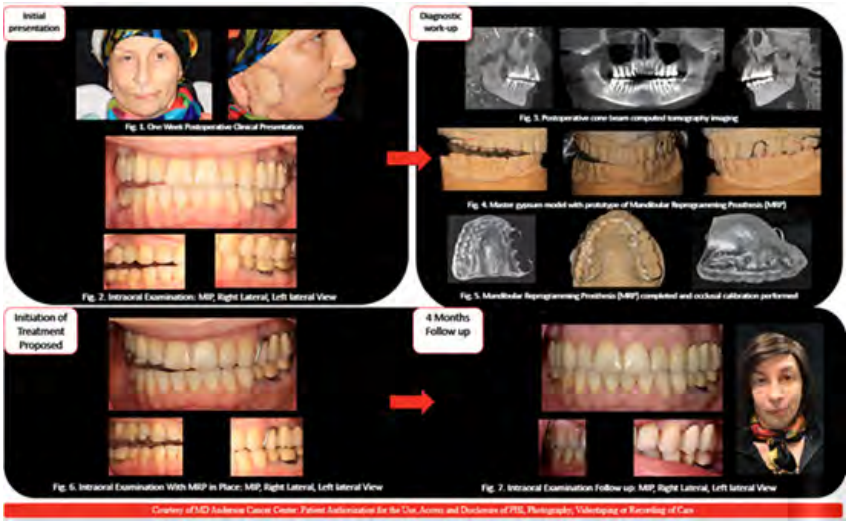
Case Presentation: Background: Mandibular deviation due to loss of mandibular bone continuity is a consequence of surgical treatment resulting most commonly to an imbalance in the muscular pull on the right and left sides of the mandible. Patients with post-surgical deviation are a challenge to rehabilitate. They are typically rehabilitated with a mandibular guidance prosthesis by maxillofacial prosthodontists.1-8

Case Report: Dr. B. is a 51-year-old neuromuscular specialist who presented to MD Anderson Cancer Center (Houston, Texas) with a history of Adenocarcinoma of the right parotid gland. Diagnosed in July of 2013. Following diagnostic workup she had the following procedures performed at an outside facility:
• Selective Parotidectomy (Partial), Neck dissection, Radiation, total dose 54 Gy (IMRT)
The patient was referred to MDA for multidisciplinary evaluation and treatment recommendations for recurrent disease. In June 2018, the patient had the following disposition of care:
• Right radical Parotidectomy, Resection of right facial nerve, Radical resection of soft and bony tissue of right face, Right partial mandibulectomy, Right comprehensive neck dissection, Right temporal bone resection, Free flap reconstruction (anterior superior iliac spine), Right side craniofacial implant placement for bone-anchored hearing aid, Radiation, 60 Gy Proton Therapy (IMPT)
Patient was referred to Oral Oncology and Maxillofacial Prosthetic Service for management of:
• Severe Jaw pain ,Mandibular deviation to the resected side, unilateral open bite.

Discussion: There are a number of methods mentioned in the literature that will reduce the mandibular deviation associated with mandibular resection:
• Maxillomandibular fixation (not feasible with a patient undergoing post-surgical

radiation therapy)
• Mandibular or palatally based restoration that will need to be fabricated at a later stage once the patient is cancer free and fully healed.
Very few publications exist that talk about early stage rehabilitation of mandibulectomy patients in order to completely eliminate post-surgical complications such as unilateral mandibular open bite and mandibular deviation.

Clinical Implications: We report a case that clearly demonstrated the importance and need for early intervention post-surgically and prior to radiation therapy to completely eliminate a mandibular guidance prosthesis.



EARLY LOADING OF FOUR ZYGOMATIC IMPLANTS UTILIZING MILLED TITANIUM BAR AND EXISTING OBTURATOR: CASE REPORT

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Case Presentation: Background: Fabrication of an obturator prosthesis in the completely edentulous patient can be challenging because retention, in the sense of a complete denture, is nearly impossible to achieve. Zygomatic implants have high cumulative survival even when immediately loaded. With improvements in digital technology such as milling, laboratories can fabricate more accurate implant bars with less time.

Case Report: This case describes a 92 year old patient who, after failures of his conventional dental implants, was unable to tolerate the mobility of his complete denture obturator prosthesis. To return function and minimize discomfort during the healing period, a decision was made to place and index four zygomatic implants immediately in the operating room. An implant connecting bar was subsequently designed, milled, and inserted within 14 days to retain the patient's existing obturator.

Discussion: This treatment modality can significantly increase the retention of the interim obturator during the healing phase. The patient's swallowing and speech are also maintained during quite well. This is made possible by the cross-arch splinting effect of the connecting bar which also reduces the long moment arms that zygomatic implants have. At UCLA, 10 patients have been treated with this method. Despite some of these patients having had radiotherapy, no implants have failed to date.

Conclusion: Early loading of quad zygomatic implants after surgery with a milled bar and obturator allowed the patient to have an early return to function.

Clinical Implications: Loading of zygomatic implants prior should be considered because of the purported benefits.

INITIAL PROSTHETIC REHABILITATION OF A COMBINED NASAL CHEEK DEFECT USING DIGITAL IMAGE CAPTURE

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Keywords: provisional nasal prosthesis, digital image capture, rhinectomy rehabilitation

Case Presentation: The healing period after a total rhinectomy before definitive prosthetic rehabilitation can take up to 3-5 months to allow for contraction and organization of the tissue bed. A nasal stent can offer some immediate cosmetic improvements and enable the patient to recover socially as soon as possible. This

clinical report describes the immediate provisionalization following a total rhinectomy using digital image capture and 3D printed model.

The patient is a 77 year-old man who was diagnosed with squamous cell carcinoma of the nose and right cheek skin in June 2019 while undergoing chemotherapy for treatment of leukemia. The patient experienced a lot of pain in the nose and cheek area; therefore the facial defect and surrounding anatomical structures were scanned with a surface light facial scanner (Artec EVA-M-3-D, Palo Alto, CA) in order to reduce patient discomfort that may be induced from a conventional impression. From the STL file, a printed model was produced (Stratasys J750™, Eden Prairie, MN) and the nose was sculpted in wax to fabricate the customized prosthesis. The model was then duplicated using alginate impression material and poured in stone. A vacuum-formed stent was then made to cover the entire defect, and holes were made for the nostrils. The nasal stent was taped over the defect and surgical packing with medical tape at the day of tumor ablation. Seven days post-op, the defect was unpacked and cleaned. Fresh 2x2 gauze was placed in the defect and covered with the nasal stent which was kept in place with medical adhesive tape. The patient was instructed to remove the temporary prosthesis daily to clean the nasal defect**.**

In conclusion, facial impression should always be performed before the ablative surgery because they provide useful information for the clinician to fabricate the temporary and definitive prosthesis. The benefits of digital image capture are the reduced discomfort when patients present with painful exophitic or ulcerated lesions. Future projects will involve direct rapid prototyping of the nasal stent.

UTILIZING DIGITAL TECHNOLOGY TO CREATE A CUSTOM ESTHETIC BANDAGE FOR POST-OPERATIVE RHINECTOMY PATIENTS

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Keywords: digital impression, nasal bandage

Case Presentation: Background: Patients undergoing partial or total rhinectomy surgeries are left with lifelong facial defect, which leaves them with psychosocial and functional deficits; to restore patient's nose by definitive prosthesis, an extended period of healing time is inevitable. The treatment workflow of fabricating a custom esthetic nasal bandage assisted by digital technology will be introduced to avoid conventional pre-operative impression as well as to allow for immediate delivery at the post-

operative follow-up visit.

Case Report: A Caucasian male was planned for the total rhinectomy. The conventional impression technique during pre-operative visit was not indicated due to extensive lesion. Sense 2 scanner was used for digital facial impression, which was superimposed to medical grade CT scan image. The technician modified the lesioned nose to a symmetric and anatomic one digitally, then the face segment was printed in 4x4 inch model. Polyvinyl siloxane impression material was applied on printed model for duplication in stone cast, which was for 1mm thick vacuum-formed matrix fabrication. Matrix was trimmed approximately according to intended surgical margin.
After the initial post-operative follow-up visit with his surgeon after surgery, the matrix was tried on the patient's face, and excess material was removed based on real margin. Moleskin padding tape was applied to cameo surface of matrix, which was then delivered to the patient and adhered on face by medical tape.

Discussion: Healing time from rhinectomy is necessary before definitive impression and can be ranged from 4 to 8 months based on receiving radiotherapy or not; compromised esthetics is expected throughout the healing process. Custom nasal bandage could be provided during initial follow-up visit after surgery for wound coverage, but it requests pre-operative impression; erosive, inflamed and painful lesion is contraindicated. By making a digital facial impression, we are able to create the printed-out model with revised contour thus the bandage can be prepared atraumatically before surgery.

Conclusion: By fabricating a custom nasal bandage with digital technology, the patient with rhinectomy can receive a temporary prosthesis at the early healing stage, and without direct and traumatic material contact on the lesion during pre-operative impression.

Clinical Implications: The technique is indicated when we expect the nasal defect created by surgery is highly noticeable and is not appropriate for conventional impression due to nature of certain cancerous lesion.

DIGITALIZED FABRICATION OF SOFT PALATE OBTURATOR PROSTHESIS WITH CAD/CAM POLYETHERKETONEKETONE (PEKK) FRAMEWORK: A CLINICAL REPORT

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Keywords: polyetherketoneketone (PEKK), soft palate obturator prosthesis, CAD/CAM

Case Presentation: Background: Polyetherketoneketone (PEKK) belong to the polyaryletherketone (PAEK) family, which are high-performance thermoplastic polymers recently introduced into clinical dentistry for their outstanding mechanical and physical properties, good wear resistance, and high biocompatibility. PEKK has an 80% higher compressive strength and better long-term fatigue properties than unreinforced PEEK and has been used as an alternative framework material for complete fixed and removable dental prostheses. However, the application of PEKK as framework for obturator prosthesis has never been reported.

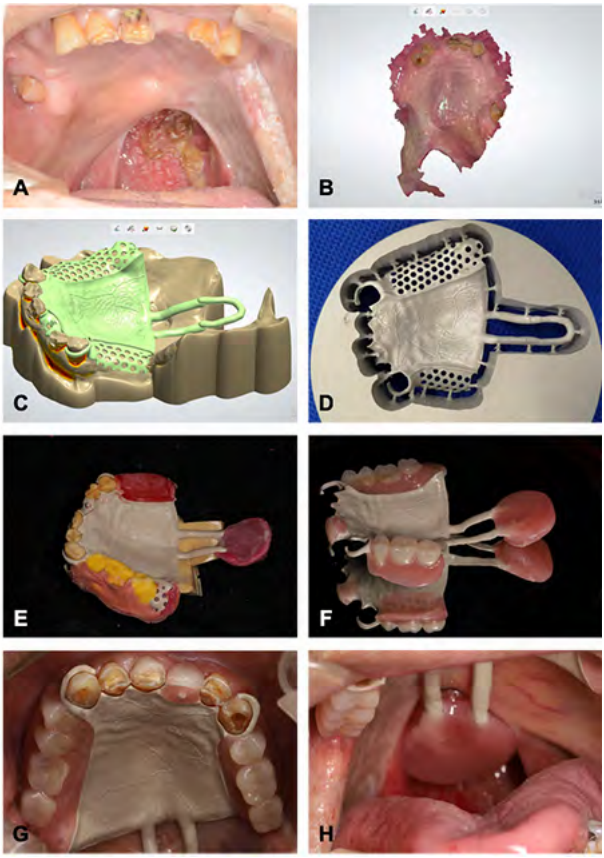
Case Report: A 58-year-old male patient with soft palate defect secondary to excision of squamous cell carcinoma was referred to Department of Prosthodontics, Nanjing Stomatological Hospital. Clinical examinations revealed extensive palatal defect area leading to impaired velopharyngeal function (Fig. A). Treatment plan included a soft palate obturator prosthesis with CAD/CAM PEKK framework and a PMMA speech bulb. Primary digital impression, including dentition, alveolar ridge, hard palate, the velopharyngeal defect area and the retropharyngeal wall, was obtained by using an intraoral scanning system (Fig. B). Data was imported to CAD software, and the framework was designed with a palatal plate, two proximal plate direct retainers on bilateral canines, and a U-shaped major connector at the hard palate level with enough posterior extension to provide support to the obturator (Fig. C). The framework design was then exported and fabricated by CAD/CAM milling from a PEKK block (Fig. D). An altered cast impression was obtained according to the conventional workflow (Fig. E), and the definitive prosthesis was processed on the PEKK framework with heat-cured polymethyl methacrylate (Fig. F). The soft palate obturator prosthesis was then delivered to the patient after careful clinical evaluation for fit, retention, stability and confirmation that the velopharyngeal function was improved (Fig. G-H), and following visits were scheduled.

Discussion: The introduction of PEAK materials into Prosthodontics suits the trend for demetalization in modern dentistry. PEKK material with tooth-like color and reduced weight, has lower flexural modulus compared to alloy, benefiting the abutment teeth with reduced distal torque. The digitalized framework fabrication also ensures simplified

processing craft with comparable accuracy.

Conclusion: In this case, alternative PEKK material used as framework for obturator prosthesis of a soft palatal defect showed satisfactory clinical outcome. However, long-term clinical observations are still needed.

Clinical Implications: In the cases of patient allergy to metal, metal exposure rejection, weak abutment teeth, or over-weight of prosthesis resulting in poor retention, PEKK could be considered as a suitable alternative framework material.



FABRICATION OF A TOE PROSTHESIS WITH PAINTABLE AND INTERCHANGEABLE NAIL

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Keywords: Toe, Prosthesis, Prosthetic

Case Presentation: Background: The great toe supports 40% of the body weight during gait and plays an important role in the function of the foot for balance and propulsion in walking and running. The metatarsophalangeal (MTP) joint is located at the base of the great toe and is the most common site of arthritis in the foot. For severe cases of great toe arthritis, surgery is recommended to fuse the MTP joint. In rare cases, this treatment is unsuccessful and amputation of the great toe may result. A prosthesis may be provided to restore natural appearance and help to eliminate the constant reminder of the disability, offering psychological therapy.

Case Report: A 44-year-old Caucasian female presented to the orthopedic department at Erie County Medical Center (ECMC) in Buffalo, NY, in January 2019 with a left great toe that was dry and gangrenous involving the entire left great toe from tip to the MTP joint plantarly and laterally. The patient had suffered from arthritis of the left MTP joint and underwent joint fusion in December 2018 with an orthopedic surgeon in private practice. She had immediate post-operative complications of loss of blood supply to the left great toe. She consulted vascular surgeons and underwent hyperbaric treatments that were ultimately unsuccessful. The patient proceeded with surgery at ECMC in February 2019 for amputation of the left great toe and placement of a split thickness skin graft to cover the wound. The surgeons referred the patient to our maxillofacial prosthetics team for fabrication of a prosthesis. Through a series of photos, this poster thoroughly explains our fabrication process.

Discussion: Our greatest challenge in designing this prosthesis was having adequate surface area coverage on the foot for application of adhesive and mechanical retention from the patient's shoes, but not too much which would add thickness to the foot and make shoe fit uncomfortable. We ultimately learned through patient feedback how much silicone coverage was desirable.

Conclusion: The patient was very pleased with the toe prosthesis and the fact that she could easily paint and interchange new nails as she desired. We used our experience with orbital prosthesis fabrication to design the acrylic nail within the silicone prosthesis.

Clinical Implications: As maxillofacial prosthodontists, we are sometimes asked to fabricate prosthetics for patients that fall outside of the head and neck region. This case is an example of how traditional maxillofacial prosthetic fabrication techniques can be applied to other circumstances.

EFFECT OF DIRECT RETAINER TYPES ON RESIDUAL TEETH IN MAXILLECTOMY PATIENTS: AN IN VITRO STUDY

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Keywords: Strain gauge, Denture designing, Maxillectomy

Purpose/Aim: To investigate the effect of direct retainer types on residual teeth in maxillectomy patients with a dento-maxillary prosthesis.

Materials and Methods: A simulated uni-lateral left side maxillectomy model and an obturator with Co-Cr metal framework of Aramany Class I were fabricated. A 3-axis strain gauge was put on the labial side of #11 root to determine the deformation under two conditions. 1) Vertical removing loads of 0.5 N, 1.0 N, 1.5 N and 2.0 N were applied at the center of the framework. 2) Vertical occluding loads of 1.0 N, 2.0 N, 3.0 N, 4.0N and 5.0 N were applied on a small stainless ball in the center groove of #26. Under the above two conditions, direct retainers on #11 were modified to following three types, a 0.9mm wire clasp (WC), an O-ring attachment (OA) and a magnetic attachment (MA). Strain values were measured 7 times for each condition. The loads were applied with a universal test machine, obtained strain values were calculated with the data analysis software. The magnitudes of maximum principle strain (MPS) and their directions were statistically analyzed by one-way ANOVA with post hoc Bonferroni test.

Results: 1) Removing load tests. The mean strain values ($\mu\varepsilon$) of MPS at 2.0 N of WC, OA and MA were 9.42, 3.38 and 10.40, respectively. The MPS of OA were significantly smaller than WC at all removing loads. The MPSs at 1.5 N and 2.0 N of OA were significantly smaller than those of MA. The mean MPS directions at 2.0 N of WC, OA and MA were 99 degree, 107 degree and 106 degree respectively rotated from the tooth axis mesial apical side.

2)Vertical occluding load tests: The mean strain values (με) of MPS at 5.0 N of WC, OA and MA were 12.40, 22.45 and 52.86, respectively. The MPS of MA were significantly larger than WC and OA at all occluding loads. There were significant differences between WC and OA at 1.0 N, 3.0 N and 5.0 N; WC and MA at all loads except for 4.0 N. The differences of MPS directions between removal loading and occlusal loading of the same retainer was within 25 degree.

Conclusions: Within the limitation of this study, it was suggested that an OPA as a direct retainer for uni-lateral maxillectomy lead to decrease strain values on a residual tooth of direct retainer.

MAXILLARY OCCLUSAL SPLINT FOR MANAGEMENT OF POST-SURGICAL MALOCCLUSION FOLLOWING FREE FLAP RECONSTRUCTION: TECHNIQUE AND UTILITY

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Keywords: occlusal, splint

Case Presentation: Background: Management of patients with mandibular tumors include segmental mandibulectomy with or without adjuvant therapy. This surgical intervention creates a discontinuity defect in the mandible causing functional and esthetic deficit. As a result, the mandible is often surgically reconstructed utilizing an osteocutaneous free flap to attain satisfactory facial contour, acceptable esthetics, and reestablishment of oral function. Post-operatively patients may experience facial asymmetry and/or dental malocclusion which may not be surgically correctable. Direct occlusal modifications can be made to correct subtle discrepancies; however, severe dental malocclusion may require fabrication of intraoral prosthetics. Fixed dental prosthetics may be possible for patients with intact dentition and appropriate skeletal relationships. For patients with severe post-surgical malocclusions, a removable maxillary occlusal splint can be fabricated that serves to establish the occlusion between the maxillary and mandibular arches.

Technique: To fabricate the maxillary occlusal splint prosthesis maxillary and mandibular impressions are made with irreversible hydrocolloid impression material. A maxillary cast is poured using dental stone and an acrylic processed base is fabricated (Figure 1) with wrought wire and ball clasps for retention. Occlusal contacts are then

generated intraorally on the acrylic processed base with greenstick impression compound. (Figure 2) The prosthesis is then processed secondarily with acrylic resin. (Figure 3) Occlusion is then confirmed intraorally, the prosthesis is polished, and delivered. (Figure 4a, b)

Discussion: Post-operative malocclusion is a sequela of reconstructive surgery that may not be self-resolving or surgically reversible. As a result, prosthodontic ingenuity may be a potential approach to manage such an issue. The maxillary occlusal splint allows reestablishment of the occlusal contacts with limited chair time for fabrication. Additionally, this approach is reversible and inexpensive to both the patient and the provider. Moreover, this solution may be a suitable alternative approach to care for patients that may be unable to afford conventional fixed prosthodontic treatment. Long term success is dependent on patient oral hygiene maintenance for retention of abutment teeth. Limitations of this approach include access to a prosthodontist or dentist with knowledge of this procedure as well as access to laboratory capable of prosthesis fabrication.

Conclusion: The maxillary occlusal splint is a reversible expeditious treatment option to manage post-surgical malocclusion following mandibular osteocutaneous free flap reconstruction.

Clinical Implications: This treatment approach can be utilized to manage a non-surgically correctable and non-self-resolving malocclusion following oncologic therapy for the head and neck surgical patient.

3D PRINTED ORAL GUARD TO PREVENT MORSICATIO LINGUARUM IN THE TONGUE CANCER PATIENT

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Keywords: Computer Aided Design, 3D Printing, Tongue guard

Case Presentation: Objective: This poster presents the digital workflow for fabricating a tongue guard using Meshmixer, a free computer aided design (CAD) software, nonspecific to the profession of dentistry, and Formlabs resin 3D printer. The goal of this poster is to demonstrate an effective workflow for fabricating an oral appliance that

prevents recurrent tongue biting.

Background: Patients with squamous cell carcinoma of the oral tongue, who had received or were in anticipation of a partial glossectomy to resect their tumor followed by reconstruction using a radial forearm flap (RFF). At the surgeon's request, oral appliances were fabricated to prevent the patients from biting their grafts causing trauma. Due to the delicate nature of the recently constructed flap, a traditional laboratory workflow was not ideal.

Conclusions/Clinical Implications: A digital workflow for fabricating an oral appliance for preventing recurrent tongue biting can replace time consuming analog laboratory procedures with a more cost effective, expeditious, and long-term solution.

OPIOID INSUFFLATION: WHEN SUBJECTIVE REPORT CONTRADICTS OBJECTIVE FINDINGS

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Case Presentation: In 2017, more than 47,000 Americans needlessly died from opioid overdose, but the effects of the opioid epidemic cannot be measured only in mortality statistics. Opioid abuse manifests in a variety of presentations, often confounded by difficult conversations with patients reluctant to disclose their addiction. In this presentation, we will present one such encounter.

In the Winter of 2019, a white middle aged, upper-middle class female presented to our clinic with the chief complaint, "A few years ago, I used too much Afrin and it destroyed the septum of my nose. Around the same time, I also fell while walking with a spoon in my mouth and it created this hole in the roof of my mouth". The patient further elaborated she had undergone multiple unsuccessful plastic surgeries to repair her nose. During her initial interview, the patient disclosed taking hydrochlorothiazide, Ambien as needed, and lisinopril. Upon further questioning, the patient reported that she used to but no longer took oxycodone (for past surgeries) and hydrocodone (for sinusitis).

Extraoral examination revealed her nose covered with bandages. Intraoral examination revealed with a large Aramany class III palatal defect, which she obturated with craft-store silicone in a cork like fashion.

Although the patient subjectively reported the cause of her simultaneous palate and nasal trauma to be a spoon and Afrin respectively, a cautious possibility of opioid

insufflation (snorting) was considered.

In order to rule out opioid abuse, the authors consulted The Indiana Prescription Monitoring Program (INSPECT). Her INSPECT report over the course of the last twelve months indicated significant quantities of opioid medication, usually Hydrocodone with Acetaminophen, occasionally Oxycodone, ranging from 60 – 120 tabs per month, prescribed by multiple clinics.

While it would be easy to fabricate a better obturator for the patient, we reasoned, that if the patient is still insufflating opioids, we would be assisting her in her addiction by improving the seal between oral and nasal cavities.
At a subsequent appointment, the authors gently questioned the patient regarding the INSPECT report and suggested a medical clearance from her physician to rule out any ongoing opioid abuse.
Ultimately, the patient did not return for treatment, stating she would be getting treatment at John Hopkins at no charge.

ROLE OF MAXILLARY IMPLANTS FOR PATIENTS UNDERGOING MAXILLECTOMY WITH ACQUIRED EDENTULISM

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Case Presentation: Background: Acquired maxillary defects in patients that are edentulous can be very challenging for the prosthodontist to adequately rehabilitate. Additionally, patients that are recently edentulous can be even more challenging given their inexperience with a complete maxillary prosthesis. The purpose of this report is to describe the utility of implants in the residual native maxilla to assist in rehabilitation of the edentulous patient with an acquired maxillary defect.

Technique/Case Report: Multidisciplinary treatment planning, inclusive of a clinical and radiographic evaluation, is performed to identify suitable sites for endosseous implant placement given the plan for oncologic resection and reconstruction. The patient is then taken to the operating room and endosseous implants are placed in collaboration with the head and neck surgeon. Then, after successful osseointegration of the implants a milled implant retained maxillary resection is fabricated to rehabilitate the residual maxilla.

Discussion: Edentulous patients that are not suitable candidates for osteocutanous reconstruction can be reliably reconstructed with osseointegrated implants in the

maxillary arch. This is a relatively low risk intervention given the overall scope of the patient's treatment course. Additionally, these implants can be used to improve support, stability and retention of the planned maxillary prosthesis thereby improving patient quality of life.

Conclusion: This case report describes the role of endosseous implants to improve the prosthetic outcome of patients with acquired edentulism and an acquired defect of the maxilla.

Clinical Implications: Osseointegrated implants can be utilized for patients with acquired edentulism in combination with maxillary defects to improve the retention, stability and support of otherwise unfavorable maxillary resection prostheses.

ORBITOFACIAL REHABILITATION IN AN ONCOLOGIC PATIENT

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Keywords: ORBITOFACIAL REHABILITATON

Case Presentation: The various treatment modalities of malignant tumors in the head and neck area can result in significant aesthetic and functional alterations. In many cases, the surgical reconstruction of facial defects is not a viable alternative, so a facial prosthesis can be used to replace missing structures.

Case Report: We present the case of a female patient of 52 years old, with diagnosis of squamous cell carcinoma of the right ocular conjunctiva, undergoing orbital exenteration and immediate reconstruction of skin graft 17 years ago. Histopathological analysis reported positive borders so she received a scheme of classic radiotherapy. Currently she has no data of tumor activity.
The patient had a deteriorated orbital prosthesis so we started the elaboration of a new prosthesis, taking an impression with irreversible hydrocolloid material, previous marking of the anatomical references; the ocular prosthesis was mimicked according to the contralateral eye, a wax prototype was made and orientation of the ocular prosthesis. Subsequently it was processed in silicone carrying out the intrinsic characterization and finally it was placed using adhesive retention and characterized according to the characteristics of the patient.
Conclusions: The rehabilitation with orbitofacial prosthesis provides a noninvasive

alternative, with good aesthetic results that allows a better evaluation of the affected area in case of tumor recurrence, in addition to returning the patient's self esteem, improving their emotional status and social reintegration.

FIBULA FREE FLAP RECONSTRUCTION: IMPLANT AND PROSTHETIC REHABILITATION COMPLICATION RATES

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Purpose/Aim: Fibular free flap has been used for reconstruction as first described by Hildago in 1989. Since that time, implant and prosthetic reconstruction process has continued to evolve. Use of endosseous implants and digital technology continued to evolve the field, however specific risk profiles and failure rates have not been clearly identified. The purpose of this study was to identify and evaluate both the implant and prosthetic complication rates of fibula free flap rehabilitations completed between 2007 to present at the Mayo Clinic. A total of 111 fibular reconstructions were identified and evaluated. Complications evaluated included: Material chipping and fractures, screw failure, tissue complications, prosthesis removal, prosthesis adjustment, and implant failure. Results indicate that fixed implant prosthetic rehabilitation continues to be a reliable method, with favorable survival rates; the predominant complications being tissue hypertrophy and prosthetic failure due to implant failure or side effects of surgery or adjuvant therapy.

ORBITAL PROSTHESIS FOR A SHALLOW SOCKET DEFECT: A CASE REPORT

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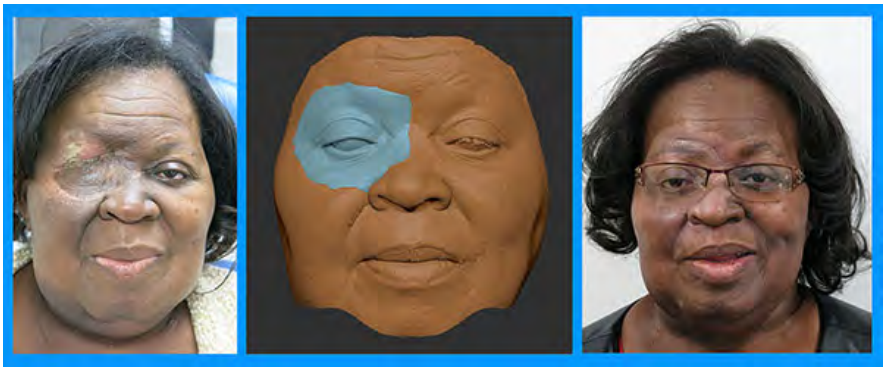
Case Presentation: Case Presentation: This clinical case reports on the construction of a custom adhesive retained orbital prosthesis aided by the use of digital technology for an extremely shallow orbital defect. The successful outcome is further complicated due to the protuberant anatomy of her remaining eye. Patient has a history of nasolacrimal carcinoma of the right duct, stage pT4aN2bM0 SCC. She underwent an orbital exenteration closed with a radial forearm free flap. Following surgery, adjuvant radiation therapy was administered and completed 4 months post-op. Patient was then referred to The Anaplastology Clinic for an adhesive retained orbital prosthesis. A digital scan was taken of the patient's head and neck. The scan was then used to digitally create a prosthetic prototype to fit the shallow defect. An Ocular was then fabricated in PMMA (poly methyl methacrylate) to match her right eye in color and size. The prototype was 3D printed on an SLA (selective laser sintering) printer. The prototype was then duplicated to base plate wax and the ocular was incorporated using the gaze set by the scan. The wax prototype was then fit to the patient and margin reductions were made where needed for soft tissue movement. An epoxy mold was made of the completed wax prototype and custom colored silicone was cast in the mold around the custom ocular. Final extrinsic color was added chairside.

Conclusion: The use of digital technology greatly helped in the successful outcome of this case. Although the skill of the anaplastologist was also key, the digital work aided the anaplastologist in creating an extremely thin prosthesis for a shallow defect while still achieving a very natural aesthetic suggesting the existence of a full globe within her anatomy which clearly was not there.



PROSTHETIC REHABILITATION IN EDENTULOUS PATIENT WITH PARTIALLY MAXILLECTOMY

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Keywords: Maxilectomy, Definitive Obturator

Case Presentation: Background: Maxilectomies due to malignant neoplasms leave sequels that communicate the oral cavity with the nasal cavity, resulting in facial deformities, and difficulties in chewing, swallowing and speaking, reducing self-esteem. To return these functions, the manufacture of special prosthetic devices that are difficult to prepare are required.

Technique/Case Report: A 73-year-old female patient clinically has an edentulous flange with a unilateral maxillary defect that exceeds the midline due to surgical intervention to recurrence of malignant myoepithelioma; It is currently free of tumor activity. It also presents obturator prostheses with unfavorable results. The teeth 41, 42, 47, 31, 32, 33 and 34 in the jaw are in a bad position with poor hygiene, free of disease and in conditions of being rehabilitated. It is decided to manufacture a total prosthesis with a modified sealing bulb and a lower removable partial prosthesis.

Discussion: Maxilectomized patients have a lack of anatomical limits creating dysfunctions of speech, swallowing, breathing, as well as aesthetics.
Likewise, the obturators in edentulous patients present the complication of poor retention and stability so that the preservation of the remaining structures is the main objective for the prosthetic rehabilitation added to the elaboration of a obturator as light as possible (deepening the prosthesis to reduce its weight is a well-established fact) to provide favorable retention, stability, support, comfort and cleanliness for the patient.

Conclusion: The surgical removal of malignant neoplasms in the maxilla leaves defects that can be rehabilitated almost entirely by prostheses that meet the patient's expectations thanks to the knowledge and skill of the operator.

Clinical Implications: A good maxilar obturator obtains a good oral-nasal barrier as well as an obvious change in aesthetics, phonation, swallowing, chewing and self-esteem.

NUTRITIONAL EVALUATION OF THE PATIENTS USING MAXILLOFACIAL PROSTHESIS FOR A LONG TERM

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Keywords: Nutrition, Brief-type self-administered diet history questionnaire

Purpose/Aim: Nutritional management in the rehabilitation setting grows increasingly important. Most patients who have maxillary and mandibular defects use maxillofacial prosthesis to compensate for deficits in swallowing, mastication, speech and to improve facial disfigurement. It is well known that prostheses are important for nutrition, however, it is not clear that nutrient excess and deficiency of the patients using maxillofacial prothesis. This study investigates the characteristics of the diet using maxillofacial prosthesis for a long term based on the brief-type self-administered diet history questionnaire (BDHQ).

Materials and Methods: Ten participants (3 males and 7 females) were included in this study. The patients had been able to use maxillofacial prosthesis for a long term without problems such as pain.
BDHQ was a validated method of dietary assessment, which contains queries about the consumption frequency of 56 foods and beverages and 9 dishes commonly consumed in general Japanese populations. Using the Dietary Reference Intakes for Japanese (DRIs), we divided into the nutrient for which deficiency is a problem and the nutrient for which excess is a problem. DRIs proposes reference values of desirable dietary intake of energy and nutrients for Japanese people to maintain and promote their health. It is specified by the Minister of Health, Labour and Welfare. Based on the value of Dietary Reference Intakes for Japanese (DRIs), the data obtained by BDHQ was classified into three levels of risk.

Results: The normal range of BMI was 18.5 or more and less than 25.0 and the ratio was 70%.
The nutrients of Protein, Folate and Iron were within the normal range in all patients, the nutrients of Calcium, Vitamin C, Total dietary fiber, Potassium, Sodium, Fat, Saturated fat, Cholesterol, and Alcohol included two stages of moderate risk and the most dangerous.
The nutrient with the highest risk of overdose among the patients is Sodium.

Conclusions: It turned out that patients using maxillofacial prosthesis for a long time without problems were able to take many nutrients at normal levels. Many patients

avoid alcohol consumption, pay attention to their diet, and maintain a well-balanced diet, so they generally maintain adequate BMI. However, regarding unsaturated fatty acids, fats, and Sodium, it was found that the intake criteria were exceeded, and the levels reached dangerous levels.
For these nutrients, it is necessary to identify the food that caused them and to provide special nutritional guidance for the patients using maxillofacial prothesis.

BIOMECHANICAL CONSIDERATIONS FOR PROSTHETIC RECONSTRUCTION OF ACQUIRED MANDIBULAR DEFECTS WITH FREE FIBULA FLAP: SYSTEMIC ANALYSIS

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Purpose/Aim: Acquired segmental defects of the mandible are most commonly secondary to ablative tumor therapy or avulsive traumatic injury. Other causes can be inflammatory or infectious conditions. Acquired defects of the mandible result from trauma, infection, osteoradionecrosis and most commonly, ablative surgery of the oral cavity and lower face. These defects are debilitating due to their negative effect on facial appearance as well as disabilities of mastication, swallowing, speech and oral competence. The goals and criteria for successful mandibular reconstruction is to establish continuity, alveolar height, arch form and width, maintain bones, and improve facial contour. Surgical reconstruction techniques include nonvascularized bone graft, fibula free flap, iliac crest free flap, scapula, spanning reconstruction plate, etc. Each technique is indicated for different defects depending on location and extent. The fibula flap was first described for mandibular reconstruction in 1989 by Hidalgo, and remains a commonly used flap because of its versatility, our research is to compare the different techniques of the fibula flap.The purpose of this research is to compare between single barrelled technique and double barrelled technique in its techniques and outcomes.

Materials and Methods: The available literature including case reports, clinical studies and technique papers were reviewed to compare the different methods of Fibula free flap for reconstruction of acquired mandibular defects. The benefits and limitations as well as critical factors and selection criteria for each technique were noted.

Results: The available literature revealed multiple techniques for mandibular reconstruction. The most versatile and commonly used technique was the Fibula free flap. Different techniques of fibula flap reconstruction include single barrelled technique and double barrelled technique. Both techniques have limitations and benefits and no technique is significantly better than the other.

Conclusions: Single barrelled technique Limitation is the height of bone (~1.5cm) compared to 4-5cm height of normal mandible, this limits the length of implants that can be used for dental reconstruction and also results in a large crown to implant ratio. The deep placement of implant and overlying soft tissue can complicate oral hygiene for the patient.
Double barrelled technique allows for more height of bone for dentoalveolar implant reconstruction with favorable crown to implant ratio and esthetics. There is a risk of blocking blood supply to the graft resulting in graft failure. Another limitation is micromovement between the layers of fibula flap which can be a point of failure of dental implants.

ARTICULATED INDIVIDUAL OCULAR PROSTHETICS

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Case Presentation: Background: The absence of the eyeball generates different anophtalmic cavities in each patient, so the eye prosthetics must posses suitable characteristics, providing adequate volume that allows contact with the walls of the anophthalmic cavity avoiding deformation, bringing back projection and volume to the eyelids for a correct aesthetic and function.

Case Report: A 32 years old male patient, single, employed, native and resident of the Estado de Mexico, attends to the maxillofacial prosthetics clinic for the preparation of an ocular prosthesis. Patient received 15 bullet impacts in November 2016 during an assault, one of them, in the left eye. After the bullet impact an enucleation was practiced without a conformer placement. At the physical examination, we can observed well hydrated mucous membrane with a pale pink coloration without secretions, eyelids with a correct tone and limited mobility, wide and deep anophthalmic cavity with small palpebral aperture compared to the amplitude of the cavity, therefore we decide to make an articulate individual ocular prosthesis.

Discussion: A wide and deep anophtalmic cavity rehabilitation is a big challenge. We must provide to the patient the chance of rehabilitation with an articulated ocular prosthesis, which is performed in two parts that are inserted inside the anophthalmic cavity separately and once they are inside, it is articulated to become a unit to provide aesthetics and function, based on the patient individual requirements.

Conclusion: When an anophthalmic cavity is wide, deep and complex with a small palpebral aperture, becomes very difficult to perform a conventional ocular prosthesis,

in these cases, an articulated ocular prosthesis is the best choice. In this way, the ocular prosthesis fill completly the anophtalmic cavity providing aesthestic and function correctly.

Clinical Implications: After the enuclation and bullet impact the anophtalmic cavity size represent a rehabilitation challenge since a conventional ocular prosthesis can not be introduced throw the small palpebral aperture. To solve this complication, we choose an articulated ocular prosthesis providing the proper conditions for a aesthetic and funcional rehabilitation and reinserting the patient to his daily activitites bringing confidence and comfort to the patient

PROSTHODONTIC REHABILITATION UTILIZING DIGITAL TECHNOLOGY IN 26 YO PATIENT WITH HURLER'S SYNDROME: A CASE REPORT

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Keywords: Hurler's, Syndrome

Case Presentation: Purpose/Aim: Hurler's syndrome, a most severe form of mucopolysaccharidosis type I (MPS I), a rare autosomal recessively-inherited disease characterized by a deficiency in alpha-L-iduronidase. Children with Hurler's syndrome appear relatively normal at birth, but if left untreated, show a gradual mental and physical deterioration with death usually occurring prior to the second decade of life. Currently, treatment for Hurler's syndrome is bone marrow transplantation with high dose radiation and chemotherapy. The purpose of this case is the prosthodontic rehabilitation of an adult male patient with a diagnosis of Hurler's syndrome utilizing digital technology to fabricate immediate maxillary and mandibular complete prosthesis'. The patient's remaining dentition exhibited severe mobility due to root agenesis, a documented consequence of full body radiation which the patient received at 15 and 22 months of age. At 26 years of age, the patient is one of the longest living Hurler's cases reported.

Materials and Methods: Digital techniques were chosen over traditional methodology due to existing severe mobility of the remaining dentition. An Itero Element intraoral digital scanner was used to record patient's dental arches and supporting soft tissues. A prescription, digital file, Exabite II NDS Vinyl Polysiloxane CR-record, tooth and tissue shades were sent to a commercial lab for the fabrication of the immediate maxillary and

mandibular removable prosthesis. Two sets of poly methyl methacrylate casts were 3-D printed. The first set of casts represented the patient's actual dentition. The second cast was altered digitally to approximate the patient's edentulous ridges. Using the casts of the patient's dentition, a Stabilized Baseplate Occlusion Rim was produced for the lower arch using Triad visible light-cured resin and Aluwax. A centric relation record was obtained using bimanual manipulation and sent to the commercial lab. Due to the complex medical history of the patient, the extractions, try-in and delivery of the immediate complete removable prosthesis' were performed in the operating room in conjunction with the oral surgery team. This was followed by a soft reline and subsequent hard laboratory reline to improve the adaptation of the prosthesis' and improve retention.

Results: A successful result obtained in the rehabilitation of a patient's dentition with immediate maxillary and mandibular removable prosthesis made by digital means.
Conclusions: Digital technology should be considered as an option for prosthodontic rehabilitations in indicated cases, and special consideration should be given to treating patients with complex medical conditions when conventional methodology of denture making is not ideal.

FACTORS AFFECTING THE RESTING METABOLIC RATE (RMR) IN PATIENTS TREATED ORAL CANCER

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Keywords: Resting metabolic rate, CRP, MNA-SF

Purpose/Aim: Patients with oral cancer can cause malnutrition because of functional disorders such as mastication and swallowing. Therefore, the treatments of cancer, especially surgery, radiation and chemotherapy have significant negative impact on oral intakes of nutrition during and after therapy. The purpose of this study is to reveal the factors affecting the nutritional status in patients with oral cancer in perioperative period by using indirect calorimetry.

Materials and Methods: Twenty-five patients (12 males, 13 females) who had undergone maxillectomy, mandibulectomy and glossectomy were included in this research. The age of them ranged from 25 to 85 years and the average age was 65 years. Assessments of nutrition status included the followings: weight, height,

calculation of Body Mass index (BMI), C-reactive protein (CRP), Albumin (Alb), Occlusal Unit (OU), Mini Nutritional Assessment (MNA(R)-SF), resting metabolic rate (RMR). OU was defined as the number of posterior occlusion. RMR was measured by using indirect calorimetry (Fit-2100, Cosmed, Italy). Amount of RMR change defined as the difference between before and after the surgery. All study-related procedures were approved by the Ethical Committee of Tokyo Medical and Dental University (Approval No.1079).

Results: Multiple regression analysis was used to identify the predictors related to the amount of RMR change. A P value of <0.05 was accepted as indicating statistical significance. SPSS statistics software (Version 21.0, IBM; Tokyo, Japan) was used for statistical analysis. The amount of RMR change was assigned to the dependent variable, OU, the amount of CRP change and MNA(R)-SF were assigned to the independent variable. The following regression equation was determined: the amount of RMR change= 9.588 + 0.462* ' the amount of change of CRP' + 0.699* 'MNA(R)-SF score' - 0.12* 'OU'. R was 0.578, R^2 was 0.334, and the adjusted R^2 was 0.239.

Conclusions: MNA(R)-SF was found to be a positive factor for the amount of RMR change. It is important to evaluate the nutritional status using MNA(R)-SF score before surgery have a huge effect on the condition after surgery. It is suggested that the amount of CRP change was a weak factor which cannot ignore because the CRP is an inflammatory marker and inflammation can cause the rise of RMR. MNA(R)-SF and CRP are reasonable inspection items because they do not need any specific device and are easy to achieve.

OPEN LOCK: A RARE COMPLICATION WITH FIBULA FREE FLAP SURGERY

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Keywords: open, lock, TMJ

Case Presentation: TMJ dislocation is a common occurrence that is usually self-limiting. An interesting case is described in which surgical complications after fibula free flap reconstruction resulted in chronic open lock dislocation. Clinical considerations and treatment options are described.

MAXILLOFACIAL PROSTHETIC REHABILITATION OF COMPLEX ANOPHTHALMIC AND MAXILLARY DEFECT.

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Case Presentation: Background: Retinoblastoma is the most common intraocular malignancy afflicting in childhood, with an incidence of 1:18,000 live births, and represents about 3% of all paediatric cancers. Survival rates exceed 95%, with vision conservation in most eyes. This parhology metastasizes to regional lymph nodes, lung, brain and bone. The management modalities consist in different lines of treatment that depends of the extension of the lesion that includes chemotherapy, cryotherapy, exenteration, enucleation and evisceration. Fibrous dysplasia is a benign fibro-osseous disease, which consists in the replacement of normal bone by excessive proliferation of fibrous connective tissue with abnormal bone structures, it appears in children, progressing during adolescence, sarcomatous degeneration occurs in 0.5%. In case of large injuries, which cause functional or aesthetic deformity, curettage can be performed, the result is good, but there is the possibility of recurrence. The surgery could cause facial deformity, complications and sequelae.

Technique/Case Report: A 20-year-old man with a history of left eye enucleation due to retinoblastoma and 5 years using an ocular prosthesis, with no change to date and postoperative left-field maxillectomy due to fibrous dysplasia in August 2018.
Patient with left anophthalmia and deficient inferior fornix, maxillary defect classified Aramany II. Ocular prostheses were made with gradual changes to shape the cavity and improve aesthetics. For maxillary rehabilitation, a surgical obturator was placed with the purpose of oral feeding immediately, later it was changed to a transitional obturator one month after surgery, making the necessary adjustments during the healing process and changing it with a definitive obturator six months later.

Discussion: The prosthetic rehabilitation is complicated by the conditions of the tissues, such as the conformation of the anoftalmic socket, fornices and eyelids.

Conclusion: The maxillofacial prosthetic rehabilitation returns functionality and aesthetics improving the quality of life.

Clinical Implications: In this case, the complexity was that the anophthalmic cavity had non-ideal conditions, because the patient used the same ocular prosthesis since he was 15, prior to this period of time, he didn't use any other prosthesis, therefore, both, the cavity and the orbit did not reach a proper size due to a deficient growth, and as a consequence, the patient had a marked facial asymmetry, The size of the prosthesis was then increased periodically, to shape the cavity. However we have not managed to reach excellence due to these inconveniences.

EFFECT OF THERMAL PROCESSING ON MECHANICAL PROPERTIES OF 3D–PRINTED PEEK AS BONE ANALOGS

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Purpose/Aim: Because of its unique mechanical, chemical and biological properties, 3D-printed polyether ether ketone (PEEK) has great potential as customized bone replacement for critical-sized cranio-facial defects, particularly for segmental defects of the mandible. The purpose of the study was to evaluate the effect of the thermal processing on mechanical behaviors of 3D printed polyether ether ketone.

Materials and Methods: PEEK samples were printed using fused deposition modeling (FDM) with different chamber temperatures and pre-and post- heat treatment. Evaluations wee in terms of their dimensional accuracy, crystallinity, and mechanical properties. Mechanical testing samples included mini dumb-bell shaped tensile specimens (ASTM D638-03, Type IV), cylindrical compressive specimens (15 mm in diameter and 15 mm in height) and flexural specimens (80 mm x 10 mm x 4 mm). Scanning electron microscopy (SEM), X-ray diffraction (XRD) analysis, thermogravimetric analysis (TGA), and dynamic thermomechanical analysis (DMA) were conducted to characterize the samples.

Results: Crystallinity and mechanical properties increased with elevated chamber temperature and post-printing annealing. PEEK samples show anisotropic properties after 3D printing process. Variations of material properties from three printers are evident.

Table 1. Results of mechanical and physical properties of printed PPEK
Deviation*100%
Hyrel Intamsys Indmatec
Hardness (HD) 84 86 82 2.5 4.4 3.1
Tensile strength (MPa) 65 76 84 4.7 3.3 5.9
Tensile modulus (MPa) 3065 3170 3337 10.0 7.6 11.0
Tensile elongation (%) 21.2 12.3 20.1 1.7 4.7 4.1
Compressive strength (MPa)110 117 125 2.1 2.8 1.7
Flexural strength (MPa) 106 126 127 2.6 3.2 1.9
Flexural Modulus (MPa) 2190 2622 2667 7.5 3.8 4.7

Conclusions: Many factors affect the quality of 3D-printed PEEK. Future FDA regulations for 3D-printed products are needed for this highly customizable manufacturing process to ensure safety and effectiveness for biomedical applications.

EVALUATION OF SYNERGISTIC OSTEOGENESIS BETWEEN ICARIIN AND BMP2 THROUGH A HIERARCHICAL POROUS DELIVERY SYSTEM

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Purpose/Aim: Bone morphogenetic protein 2 (BMP2) is well known as an outstanding growth factor for inducing new bone formation. However, improvements are still required to use BMP2 effectively and expand its clinical application due to the potential side effects at high doses.

Materials and Methods: In this study, icariin (IC), a type of traditional Chinese medicine, was originally proposed to be a cooperative factor for BMP2. An alkaline phosphatase (ALP) activity assay showed that IC promoted BMP2 osteogenesis in a concentration-dependent manner with significant enhancement at 38.4 μM versus that for BMP2 at 0.8 μg/mL. Furthermore, we developed a composite hierarchical porous scaffold (SF/SBA15) composed of micropores of silk fibroin (SF) scaffold and micropores of SBA15 for controlled delivery of BMP2 and IC.

Results: This composite scaffold was investigated by a series of physical characterizations and displayed good in vitro cell biocompatibility. Additionally, the composite scaffold also showed the degradation rate of 12% dry weight loss, and a slight change in the microstructures within 10 days. Moreover, BMP2 and IC were loaded into the SF and SBA15 structures, respectively, of the SF/SBA15 scaffold. This protein/drug loading system (SFBMP2/SBA15IC) provided delivery of BMP2 with an initial burst release of 60.9±0.9% in the first 24 h and a gradual release over the subsequent 6 days to 97.9±0.8%, while IC exhibited a burst release of 64.2±0.7% in the first 24 h, followed by sustained release to 92.4±0.8% over 10 days. With the prolonged local retention and interaction duration of BMP2 and IC, the SFBMP2/SBA15IC scaffold provided better osteogenic differentiation than other groups with different loading modes of BMP2 or IC, as determined by ALP staining and quantitation and Alizarin red staining. Finally, the results of real-time qPCR analysis indicated that the SFBMP2/SBA15IC scaffold induced a significantly higher increase in the RUNX2, ALP, COL I and OCN expression levels of co-cultured bone marrow mesenchymal stem cells (BMSCs) than other payload composite scaffolds.

Conclusions: This study suggests that a micro/meso hierarchical porous delivery system of BMP2 and IC ensures osteogenic synergy and demonstrates promise for bone tissue engineering.

3D PRINTING OF POLYETHERETHERKETONE (PEEK) FRAMEWORK: A CLINICAL WORKFLOW FOR SOFT PALATE OBTURATOR PROSTHESES

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Case Presentation: Congenital or acquired soft palate defects will cause velopharyngeal insufficiency and could be rehabilitated with an obturator prosthesis. This dental technique describes a clinical workflow for soft palate obturators fabrication incorporating digital intraoral scanning and 3D printed polyetheretherketone (PEEK) framework with fused deposition modeling (FDM), together with conventional functional impression and altered cast techniques. A well-fitted, tooth-like colored, and lighter obturator prosthesis was successfully delivered to the patient. The proposed technique demonstrated the feasibility of digital intraoral scanning for making soft palate defect impressions, and the usage of 3D printed PEEK material was firstly reported for making dental prostheses in this article.

MAXILLOFACIAL PROSTHETIC REHABILITATION ON A PATIENT WITH A CONGENITAL PALATAL INCOMPETENCE

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Keywords: Maxillofacial prosthetic, congenital palate incompetence, high-arched palate

Case Presentation: Although congenital palate incompetence is sometimes clinically inapparent, it is important to consider for proper rehabilitation of the patients. High-arched palate is one of the congenital malformations of a palate and often associated to other anomalies or syndromes. This report describes the maxillofacial prosthetic treatment of a mentally retarded patient with a narrow high-arched palate.
The male patient aged 67 years old first visited the prosthetic department of our university hospital in 2013 with the chief complaint of denture misfit and difficulty in mastication. Since the intraoral examination revealed that the patient had congenital

palate incompetence, he was sent to the clinic for maxillofacial prosthetic clinic. He had mental retardation. The history taking from his family suggested that he was born with the deformed palate but had not diagnosed with any syndrome and had no experience of oral surgery. He had a pair of complete dentures made in a dental clinic seven years ago showing instability. The teeth #17, 31, 32, 33, 41, 42, 43 were the residual roots. he had hypertonia on his tongue, lip and buccal muscle. Radiographic examination using computed tomography showed that the palate was higher than the floor of maxillary sinus, and the raphe defect was deep. The fabrication of maxillofacial prostheses was planned.

The residual roots 17 and 33 were extracted and the root canal treatment for 31, 32, 41, 42, 43 was done. A complete denture with an acrylic base was fabricated on the upper jaw, and the raphe defect was filled by making a ridge. For the mandible, a complete overdenture with an acrylic base was made using piezography technic and O-ring attachments were applied on 32 and 43. The treatment procedure was explained to him using 'tell show and do' technique at needed. The prostheses were adjusted for several times. The occlusion was checked while he was relaxed and talking to get rid of the undesired voluntary movement.

The prostheses were stable with the ridge on the maxillary prosthesis and O-ring attachments on the mandibular prosthesis. He could eat without problems with them. The patient could maintain the residual teeth by himself.

The careful examination helped for the dentist to comprehend the patient's problems though there was a difficulty in history taking. The attention to his ability and the identification of the problems using clinical examination enabled the effective maxillofacial rehabilitation of a patient with congenital palate incompetence.

DYSFUNCTIONAL FACES: THE ESSENTIALS OF FACIAL PATHOPHYSIOLOGY

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Keywords: face, communication, pathology

Purpose/Aim: There are vast numbers of patients (~100 million worldwide) with dysfunctional faces. Physicians and dentists are largely unaware of, and/or unfamiliar with the pathophysiology of these facial impairments. Consequently, these patients do not get treatment. Maxillofacial prosthetists are "face experts". We are positioned to scientifically address these particular pathoses. Nonetheless, such facial impairments remain unattended because of a "disconnect" between emerging research and clinicians. The aim of this presentation is to summarize the latest findings concerning the mechanisms of facial pathology, to explain via clinical cases how humans

communicate via their faces, and illustrate, in simple terms, the complex pathophysiology that underlies the facial deficits affecting a substantial patient population.

Materials and Methods: We reviewed the published research concerning the structure of the human face, it's function and dysfunction. The literature described a fluid, rapidly changing body of scientific knowledge and the pertinent findings spanned multiple disciplines including medicine, dentistry, psychology, anthropology, sociology, and linguistics. Moreover, this knowledgebase appeared in highly-subspecialized journals not readily accessible to clinicians. Examining the epidemiological data indicated that the number of patients with untreated facial deficits was remarkably high. In response to the disconnect between the knowledgebase and clinicians, we assembled a compendium of up-to date material detailing how the face functions and fails to function with the goal to make this resource accessible to clinicians and distributable across disciplines. The resulting ten-minute poster session represents the essentials of contemporary facial pathophysiology for clinicians, explained via relevant clinical cases.

Results: 1) Epidemiological data revealed that the principal impairments of the human face are complex neuromuscular conditions. The prevalence of these conditions dwarfed disfigurement. 2) The principal role of the face is communication and socialization: the capacity of the face to express thoughts, needs and desires exceeds speech and language. 3) The evolving neuroscience of facial pathology points to neural pathway deficits rather than focal lesions as previously postulated. 4) The economic and societal impact of dysfunctional facial communication is extensive.

Conclusions: The face is the primary form of human communication and the core of socialization. A functional face is central to survival of an individual and our species. A fuller understanding of the pathophysiology of the face can enable maxillofacial prosthetists to better address the prominent facial deficits that impact on more than 1% of the world's population.

A NOVEL CONCEPT OF VIRTUAL PLANNING SURGICAL MAXILLARY ADVANCEMENT IN A A NOVEL CONCEPT OF VIRTUAL PLANNING SURGICAL MAXILLARY ADVANCEMENT IN A PATIENT WITH OSSEOINTEGRATED IMPLANTS

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Keywords: Computer-aided design and manufacturing, orthognathic surgery, surgical splint

Case Presentation: In recent years, there has been an outburst of commercially available programs for 3D virtual surgery and visualization. Computer-aided technology has gained increased application in orthognathic surgeries; improving the predictability of surgical treatment procedures and outcome. Presently available software systems allow clinicians to digitally manipulate patients' hard and soft tissue, profile tracing, and subsequently transform the pretreatment image to produce a treatment simulation. Dolphin Imaging (Dolphin Imaging & Management Solutions, Chatsworth, CA, USA) and SimPlant OMS (Materializa, Leuven, Belgium) are the two best known and most commonly used programs by dental professionals. This case report introduces a novel digital workflow for planning, designing and manufacturing a custom surgical cut-guide and post-treatment interim dental prosthesis in order to predictably execute a maxillary advancement in a patient presenting with osseointegrated implants utilizing Exocad (Exocad America), a commonly used dental CAD/CAM software by Prosthodontists**.**

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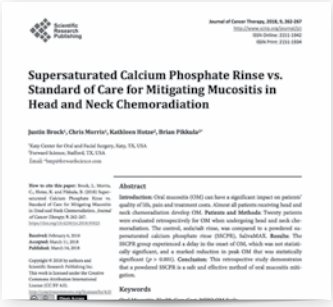

Supersaturated Calcium Phosphate Rinse vs. Standard of Care for Mitigating Mucositis in Head and Neck Chemoradiation

Justin Brock*, Chris Morris*, Kathleen Hotze*, Brian Pikkula**

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Abstract

Introduction: Oral mucositis (OM) can have a significant impact on patients' quality of life, pain and treatment costs. Almost all patients receiving head and neck chemoradiation develop OM. Patients and Methods: Twenty patients were evaluated retrospectively for OM when undergoing head and neck chemoradiation. The control, sodcult rinse, was compared to a powdered supersaturated calcium phosphate rinse (SCPR), SalivaMAX. Results: The SCPR group experienced a delay in the onset of OM, which was not statistically significant, and a marked reduction in peak OM that was statistically significant ($p < 0.05$). Conclusion: This retrospective study demonstrates that a powdered SCPR is a safe and effective method of oral mucositis mitigation.

Keywords

Clinical Research:

*"In a H&N population, the SalivaMAX group demonstrated a **significant reduction in the peak level of mucositis** along with a delay in the onset of mucositis during treatment as compared to the control."*

Brock, J., Morris, C., Hotze, K. and Pikkula, B. (2018) Supersaturated Calcium Phosphate Rinse vs. Standard of Care for Mitigating Mucositis in Head and Neck Chemoradiation. Journal of Cancer Therapy, 9, 262-267.

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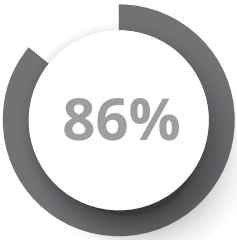

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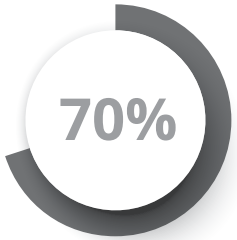

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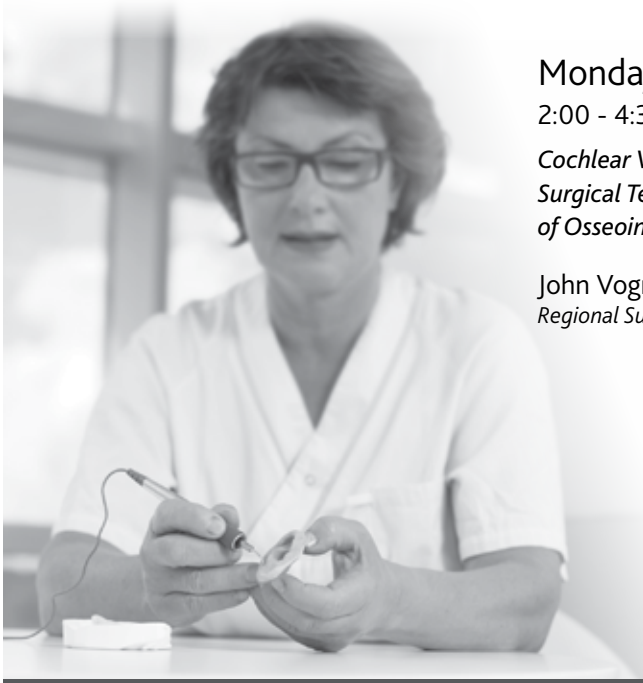

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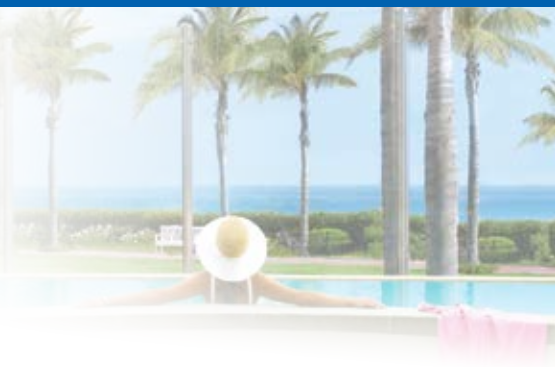

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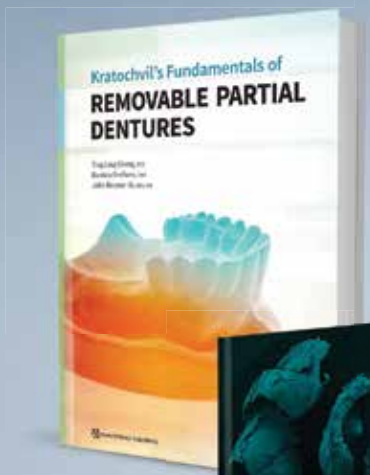

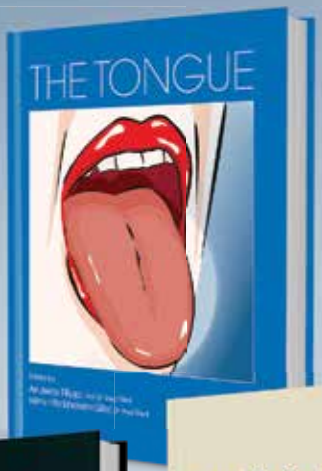

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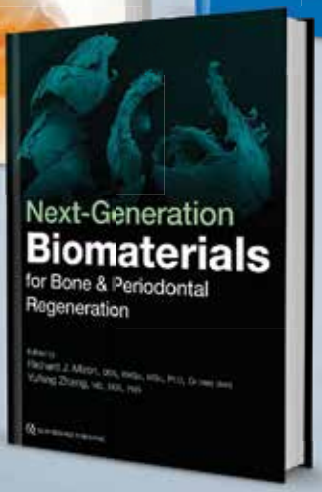

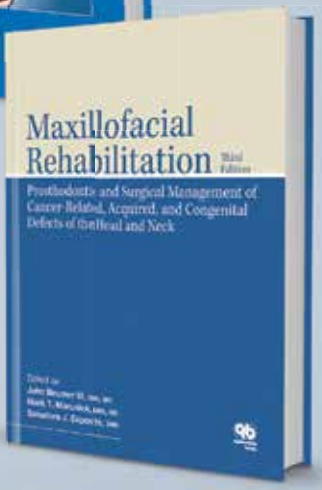

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