Advanced Topics in Orthodontics: Mini-Residency (3 days)

Join the College of Dental Medicine Division of Orthodontics for an educational and exciting three-day residency program at Columbia University Irving Medical Center in New York City. Enhance your clinical excellence at this foundational course exploring the current evidence-based concepts in Orthodontics.

Nov. 29-Dec. 1, 2017
SPEAKERS
Day 1 – Wednesday, Nov. 29

Sunil Wadhwa, DDS, PhD

Dr. Wadhwa is a graduate of Columbia University and the University of Connecticut (Orthodontics), and also received his PhD in Oral Biology from the University of Connecticut. He was a recipient of the prestigious Milo Hellman Award for the best orthodontic research from the AAO in 2002. He has also published over 50 articles and abstracts on the Biology of tooth movement and TMJ disorders. He is currently the director of orthodontics at Columbia University College of Medicine (CDM).

LECTURE
The Price of Straight Teeth
In this lecture we review the possible role of alveolar bone in mediating orthodontic tooth movement. We also discuss how manipulating may increase the rate of orthodontic tooth movement and potentially modulate orthodontic retention. Finally, we discuss the effect on orthodontic tooth movement on the alveolar bone.

Joseph Ciccio, DDS

Dr. Cicco is a board certified orthodontist, and an assistant professor at Columbia University CDM where he has worked for over 25 years. He earned three degrees from Columbia: a BS in Engineering, a DDS in Dental Medicine, and a Certificate in Orthodontics (Honor’s Concentration). In 2006, he was awarded the University’s Alumni Medal for service to Columbia. In 2007, Dr. Ciccio was honored with the Allen J. Formicola Voluntary Teaching Award, the first orthodontist to receive this award.

Dr. Ciccio has vast experience in all areas of orthodontics and dentofacial orthopedics, and sees a mix of adult and pediatric patients. He specializes in a full range of advanced techniques to enhance facial esthetics, dental occlusion and oral function.

He lectures nationally and internationally, has served as a mentor to hundreds of orthodontists, and is an active member of many professional societies and community organizations including the AAO, The Rotary Club, The Maxwell Institute, and the Little Baby Face Foundation.

LECTURE
Invisalign - A 15 Year Perspective
This presentation reviews how technological advances over the last two decades have changed the way we practice orthodontics, especially in reference to utilization of the Invisalign appliance.
Dr. Perrino is an assistant professor at Columbia University CDM in the Department of Oral and Maxillofacial Surgery. He is a graduate of Columbia University CDM and completed the Oral and Maxillofacial Surgery Residency at NewYork-Presbyterian Hospital (NYPH)/Columbia University Medical Center. During his time at Columbia, he earned his medical degree from Columbia University’s College of Physicians & Surgeons and completed a General Surgical Internship at NYPH. Upon completion of his residency, Dr. Perrino received additional training as the Pediatric Oral and Craniofacial Surgery fellow at Children’s Hospital of Pittsburgh/University of Pittsburgh Medical Center.

Dr. Perrino practices full scope oral and maxillofacial surgery with fellowship training and special expertise in cleft lip and palate, craniofacial reconstruction including corrective jaw surgery and benign maxillofacial pathology and reconstruction, pediatric oral and maxillofacial surgery, and dental implant surgery. He volunteers abroad on surgical missions to South America to treat children with cleft lips and palates.

His research interests include cleft lip and palate and craniofacial reconstruction.

**LECTURE**

*Surgical Management of Obstructive Sleep Apnea*

Patients undergoing evaluation of OSA require a detailed clinical evaluation including a thorough history as well as dental, medical and radiographic exams. Diagnostic studies such as scans, impressions, cephalometrics, questionnaires and polysomnography will be administered and reviewed to evaluate surgical candidates. Patients must understand the treatment process, including the potential for combined orthodontic and surgical care, and duration of treatment, as well as functional, occlusion and esthetic aspects of surgical treatment of OSA. Treatment options and alternatives, goals and expectations of surgical treatment and outcomes are discussed.

Day 1 concludes
Pradip R. Shetye, DDS

Dr. Shetye is a board certified orthodontist and has an appointment as assistant professor of plastic surgery (Craniofacial Orthodontics), director of the Craniofacial Dental Center and Craniofacial Orthodontics Fellowship at New York University (NYU) Langone Medical Center. He is also appointed as assistant professor of orthodontics at NYU College of Dentistry.

He received his DDS from the NYU College of Dentistry, and his post-graduate Certificate in Orthodontics from St. Barnabas Hospital. He completed an Advanced Craniofacial Orthodontics Clinical Fellowship from the University of Illinois at Chicago and Craniofacial Orthodontics Research Fellowship from the NYU Medical Center. Dr. Shetye also earned an MDS in Orthodontics from India and an MOrthRCS from the Royal College of Surgeons in Edinburgh, Scotland.

Dr. Shetye has expertise in all areas of Craniofacial Orthodontic treatment for pediatric and adult patients, with special interest in orthodontic treatment for patients needing reconstructive surgery of the face and orthognathic surgery.

Dr. Shetye is actively involved in craniofacial research and has authored over 40 peer reviewed scientific papers and a book chapters. He has given over 100 scientific presentations at various universities, national and international scientific meetings in North America, Europe, Australia and Asia.

Dr. Shetye is the recipient of several awards for clinical excellence including the Henry Kawamoto Award from the American Society of Craniofacial Surgeons, Joseph E. Johnson Award and Charley Schultz Award, both from the American Association of Orthodontics, and T. C. White Award from the Royal College of Physician and Surgeons, Glasgow. He is a member of International Society of Craniofacial Surgery, American Cleft Palate and Craniofacial Association and American Association of Orthodontics.

LECTURE

Current Concepts of Orthodontic Management in Patients with Cleft Lip and Palate

The management of patients with cleft lip and cleft palate requires extended orthodontic treatment and an interdisciplinary approach in providing these patients with optimal esthetics, function and stability. Orthodontic or orthopedic management in infancy, primary, mixed and permanent dentition and after the completion of facial growth, will be discussed. This presentation focuses on current concepts in the interdisciplinary approach to treatment planning and treatment sequencing during each phase of orthodontic treatment.

Objectives:
Upon completion of this session, attendees will be better able to understand:

- Timing and objectives of orthodontic interventions during the different phases of growth.
- Pre and post-secondary alveolar bone graft orthodontics
- Long-term outcomes of orthodontic treatment
Dr. Chen is a full-time assistant professor of dental medicine in the Section of Growth and Development, Division of Orthodontics, at Columbia University CDM. She is also the program director of the postgraduate orthodontics program.

Dr. Chen received her dental degree from Peking University in Beijing, China (PRC). She then completed a PhD Program in Oral Biology, and her specialty training in Orthodontics at the University of Connecticut School of Dental Medicine. She received her DDS from Columbia University CDM.

Dr. Chen is a member of the College of Diplomates of the American Board of Orthodontics (Board Certified) and is involved in research, teaching and faculty practice. She provides orthodontic services to both children and adults.

LECTURE

Estrogen and TMJ
This presentation focuses on the role of estrogen reception alpha and beta in TMJ chondrocyte maturation and degeneration.

Dr. Embree is an assistant professor of dental medicine in the Division of Orthodontics, and is a nationally recognized dentist scientist specializing in temporomandibular joint and musculoskeletal biology and diseases, stem cells and regenerative medicine.

Dr. Embree graduated magna cum laude from the College of Charleston, South Carolina with double BS degrees in Biochemistry and Chemistry and minors in Biology and English. She received her DMD and PhD in Cell Biology from the Dental Medicine Scientist Training Program at the Medical University of South Carolina. For her PhD training, she was awarded a fellowship though the NIH Graduate Partnership Program, and completed her PhD graduate work at the NIDCR in Bethesda, Maryland, focusing on extracellular matrix and osteoarthritis. Thereafter, Dr. Embree was recruited as an assistant professor at Columbia University CDM and completed her post-doctoral training in the field of regenerative medicine. In 2014 she was promoted to tenure track assistant professor of dental medicine and now serves as principle investigator of the Laboratory of TMJ Biology and Regenerative Medicine.

Dr. Embree received numerous awards and recognitions for her research accomplishments and assumed leadership roles in the dental science community. Upon doctoral graduation, Dr. Embree received the NIDCR Summer Student Dental Award, MUSC Most Outstanding Student in Dental Research Award, MUSC.
Most Outstanding Biologist Award, and MUSC Distinguished Graduate Award Finalist. As a post-doctorate scientist, she also received New Investigator Award at the First International Conference on Dental and Craniofacial Stem Cells, AADR 1st Place Hatton Award, IADR 1st Place Hatton Award, and various travel awards. Dr. Embree has also taken on leadership roles and has served on national committees, including the NIH Physician Scientist Workforce Committee and the AADR Hatton Awards Committee.

She has received multiple research grants including F30 Ruth L. Kirschstein National Research Service Award, K99/R00 Dentist Scientist Pathway to Independence Award, and Columbia University Provost’s Small Grants Program for Junior Faculty who Contribute to the Diversity Goals of the University.

Dr. Embree is dedicated to fostering scientific development of dentist scientists through the mentorship of dental students and development of dual degree dental curriculum. Many of her students have received travel grants and awards, including 1st Place in Birnberg Research Day and Hatton Award Finalist.

LECTURE

**TMJ Stem Cells: Biology and Translational Applications**

Dr. Embree leads a research team that focuses on TMJ fibrocartilage biology, disease and regenerative medicine. The Embree lab has identified TMJ stem cells or termed fibrocartilage stem cells that spontaneously regenerate cartilage and bone when transplanted in vivo. Efforts are dedicated to deciphering the key players comprising the TMJ stem cell niche and regulatory pathways that are critical for TMJ stem cell fate specification during development. Lessons learned from the fundamental biological concepts discovered in the Embree lab are used to dissect the molecular underpinnings gone awry during TMJ disease pathogenesis. Collectively, basic and pathological scientific findings serve as building blocks essential for developing regenerative medicinal strategies to treat musculoskeletal disease, such as temporomandibular disorders and osteoarthritis.

Daewon Haam, DDS, MS

**Dr. Haam** is assistant professor and director of the Implant Fellowship Program at Columbia University CDM.

He received his DDS and MS degree in Orthodontics in South Korea. He then completed his Postdoctoral MS degree and certificate program in Prosthodontics at Columbia University, and the Certificate of Implant Dentistry at NYU. He is a researcher and multi-trained clinician in Prosthodontics, Implant Dentistry and Orthodontics. He was awarded the ‘Best Presentation Award’ at the 2007 Academy of Osseointegration and ‘1st Prize’ in Postgraduate Implant Research Presentation at NYU. The focus of his lectures integrates Surgical Implant and Prosthodontics & Orthodontics in recovering dental health and esthetics. He lectures internationally on multidisciplinary approaches to optimize dental-facial esthetics.

Dr. Haam’s key areas of research include: (1) Investigating tissue engineering, specifically bone and tissue regenerations...
in large periodontal defect areas in conjunction with dental implants; and (2) 3-D diagnosis and treatment planning using RP model for complex orthognathic-prosthetic reconstruction cases.

**Lecture:**

**Multidisciplinary Esthetic Reconstruction in the Anterior Maxilla Area**

Aesthetic rehabilitation has to be predictable, and requires a high level of diagnosis and treatment planning. Achieving or maintaining an optimum aesthetic outcome is the result of detailed treatment planning and sequences and requires a multidisciplinary approach. Multi-specialty (Prosthodontics, Periodontics, Orthodontics, Endodontics) treatment procedures enable patients to have the best possible outcome that not only resolves the problems, but also improves esthetics.

This presentation focuses on a review of the basic biological & biomechanical principles on how orthodontic forced eruption provides advantages to regenerating osseous and soft tissues, resulting in an increased volume of alveolar ridges. Specific forced eruption protocol will be discussed on how the best treatment outcome can be achieved and maintained for the Orthodontic-Implant-Prosthetic patient throughout all treatment procedures.

**Objectives:** Upon completion of this presentation, participants should be able to (1) Understand basic biomechanical principles of orthodontic teeth movement (forced eruption), which is critical in performing controlled and gradual coronal displacement of attachment apparatus (2) Prosthetic driven multi-disciplinary treatment planning procedures (3) Non-conventional orthodontic forced eruption technique (4) soft tissue management throughout the step-by-step procedure.

Day 2 concludes
SPEAKERS  
Day 3 – Friday, Dec. 1

SPECIAL GUEST SPEAKER

Flavio Uribe, DDS, MDS

Dr. Uribe is a full-time Associate Professor and Program Director in the Division of Orthodontics at the University of Connecticut Health Center. He holds the Charles Burstone Professorship at the University of Connecticut.

Dr. Uribe received his Master’s degree and Certificate in Orthodontics from the University of Connecticut after receiving his DDS degree from the Instituto de Ciencias de la Salud in Medellin, Colombia. He also completed a residency and fellowship program at the Advanced Education in General Dentistry Program at the University of Connecticut.

He is a Diplomate of the American Board of Orthodontics, a member of the Edward H Angle Society of Orthodontists, and a member of the Council of Scientific Affairs for the American Association of Orthodontists where he sits on the committee implementing practice-based research networks for the AAO.

Additionally, Dr Uribe is a section editor of the Book Temporary Anchorage Devices in Orthodontics, co editor of the upcoming Atlas of Complex Orthodontics, and has authored and co-authored numerous book chapters and articles in peer-reviewed journals. He received a Biomedical Research Award from the AAO Foundation in 2012.

LECTURE

Unconventional Use of TADS

Temporary anchorage devices have been described for many applications in orthodontics. Appropriate knowledge of biomechanics allows for innovative approaches. This lecture will describe the use of TADs in targeted mechanics, as adjuncts in the surgery first approach, in combination with Invisalign, in the forced eruption of anterior teeth, among many other applications. Biomechanics in orthodontics with TADs will be emphasized. Appliance design based on palatal TADs will be demonstrated with a series of cases.

Cleber Silva, DDS, FICOI

Dr. Silva is an assistant professor of dental medicine at Columbia University Medical Center.

Dr. Silva graduated from the School of Dental & Oral Surgery of Columbia University (now CDM) in 1998, completed a hospital dentistry residency at Cornell University in 1999, practiced general & orthodontic dentistry until 2013, and completed a maxillofacial radiology residency at the University of Washington, Seattle, in 2015. Since 2009, he has been a faculty member at CDM.
A board-eligible maxillofacial radiologist, Dr. Silva's scientific interests are the clinical application of Cone Beam CT technology, virtual planning and 3D printing of surgical guides and templates and development of a non-ionizing radiation clinical dental imaging system. He has a patent pending for a pre-clinical dental training device that produces radiographic images without the use of ionizing radiation.

Dr. Silva teaches maxillofacial radiology to undergraduate students full-time at the CDM, and post-graduate residents part-time at the University of Washington-Seattle.

**LECTURE**

**Cone Beam Computed Tomography: Image Navigation and Manipulation**

This course discusses the nature of acquisition, storage and transfer of CBCT images and explores in detail some of the techniques for scan navigation and image manipulation.

**Session 1a: Basic Concepts** (1 hour)

**Basic CBCT Physics**: Basic concepts of how CBCT images are captured, formatted and stored.

File transfer: DICOM vs Viewers

**Software technology**: Understand the technological tools needed to interrogate scans.

Native, third party and open access software programs.

**Medico-legal considerations**: Responsibilities inherent to CBCT scanning, imaging protocol.

**Radiation dose comparison**: How does a CBCT scan compare to other modalities of radiographic examination?

**Session 1b: Common Techniques** (2 hours)

Software modules and their basic operation.

Section, Volume Render, Arch Section, TMJ, Super Pano.

General Navigation.

Anatomical landmarks.

Image orientation.

Multi Planar Reconstruction (MPR): principles and image manipulation in MPR Measurements.

Linear, curvilinear, angular, airway, bone density 2D image capture.

**Session 2: Advanced Techniques** (3 hours)

Mandibular canal evaluation 3D video captures.

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**Mini-Residency:**

**Advanced Topics in Orthodontics**

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