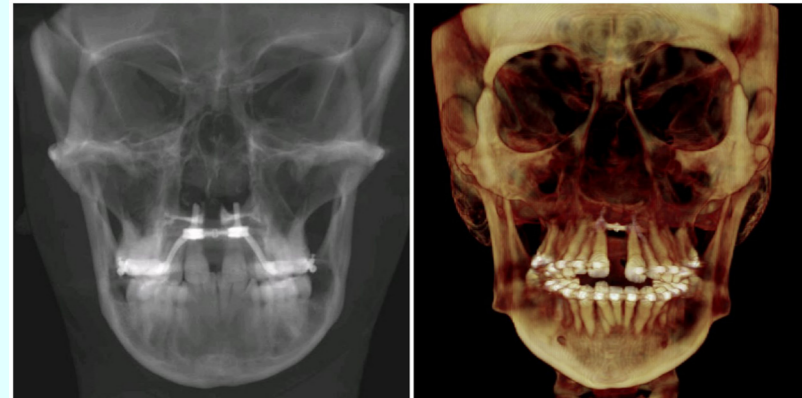
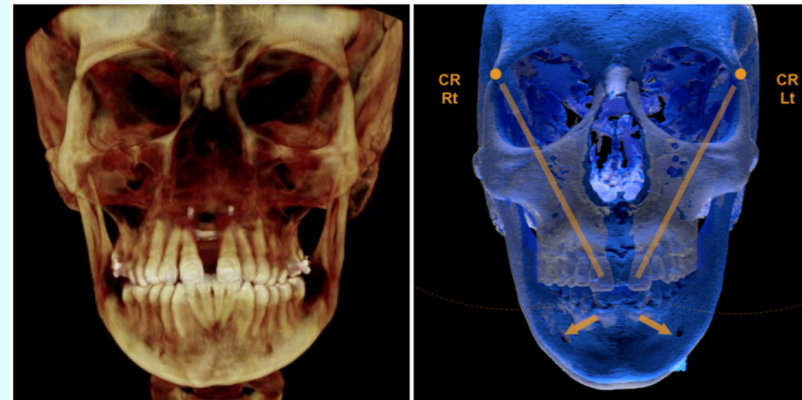
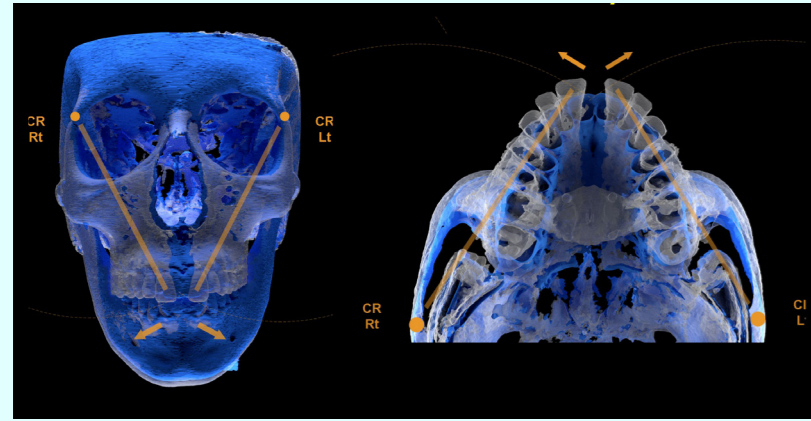


MSE: Midfacial Skeletal Expander



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Workshop 5

Miniscrew Assisted Rapid Palatal Expansion (MARPE)

Proper Fabrication and Clinical Procedures



Date: 25 Aug 2024 (Sun)
Time: 2:00p.m - 5:00p.m
Venue: Hong Kong International Dental Expo And Symposium (2/F, Meeting Room, Hong Kong Convention and Exhibition Centre)
Language : English

About the Speaker

Professor Won Moon

Department of Orthodontics,
Ajou University School of Medicine

Professor, Department of Orthodontics, Ajou University School of Medicine
Adjunct Professor, The Forsyth Institute
Adjunct Professor, Kyung Hee University
Former Thomas R. Bales Endowed Chair in Orthodontics, UCLA (2013-2020)
Founder, the Moon Principles International Research Institute
Co-Founder, BioTech Innovations
Diplomate of the American Board of Orthodontics, since 2002



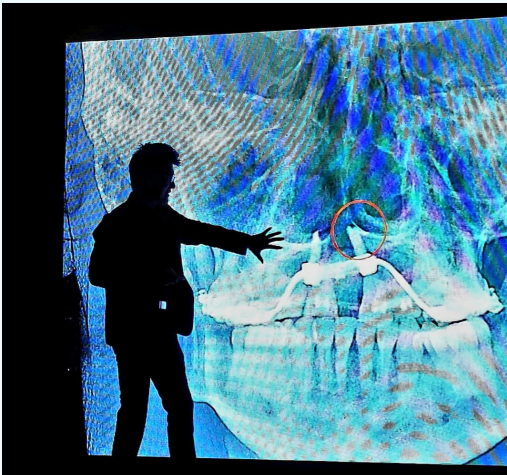
Dr. Won Moon is the Founder/CEO of the Moon Principles Institute ("the MoonLab") and a Co-founder/Chief Innovations Officer of BioTech Innovations. He served as the Thomas R. Bales Endowed Chair in Orthodontics for the orthodontic residency program at UCLA School of Dentistry (2013-2020), and he currently holds three academic positions: Full-Professorship at Ajou University School of Medicine, and Adjunct Professorship at the Forsyth Institute and Kyung Hee University.

He has been a Diplomate of the American Board of Orthodontics since 2002. He completed his dental education at Harvard and orthodontic education at UCLA. He studied mathematics prior to dentistry. His work has been published in various journals, not necessarily limited to orthodontics because of his physical science background, and he is a co-author of seven textbooks, including the Graber's 7th Edition. He has presented these findings in over 42 countries, totaling over 550 presentations. He received multiple research grants during his tenure at UCLA, including the Groundbreaking Research Project Grant Award in 2014. Besides the numerous research and presentation awards over the years, he has received the "Faculty of the Year Award" multiple times, and he was the recipient of the "Lifetime Achievement and Faculty Dedication/Excellence Award" in 2019 and the "Best Mentor Award" in 2022. His current focus has been establishing protocols for orthopedic corrections with MI, improving the airway for patients with nasal obstruction, creating virtual patients utilizing image analysis and FEM, and developing a novel Aligner System.

His interest in mid-facial expansion began in 2004 as micro-implant became available in the USA, and he is responsible for developing Maxillary Skeletal Expander (MSE), a unique micro-implant assisted rapid palatal expander (MARPE). He has been active in advocating non-surgical skeletal expansion in both children and adult patients, especially for those who may suffer from airway restrictions. His presentation in MSE has been widely accepted internationally, and numerous peer-reviewed publications are available.

The Moon Principles by Won

The latest developments with Midfacial Skeletal Expander (MSE): what we have learned after two decades of traveling uncharted territory.



The non-surgical Maxillary Skeletal Expander (MSE) has evolved since early 2000, and its application has been growing globally. With the proliferation of MSE-related publications by multiple authors, there is clear evidence to support its impact.

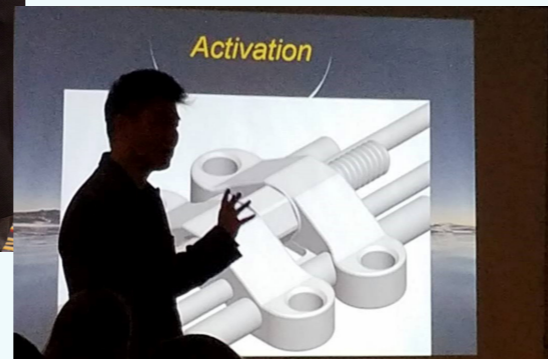
The overview of the MSE utilization will be discussed. The dental and skeletal effects of maxillary expansion using the conventional rapid palatal expander (RPE), the surgically-assisted rapid palatal expander (SARPE), and the micro-implant assisted midfacial skeletal expander (MSE) will be illustrated. Dental expansion, bone bending, and true skeletal expansion will be compared. The adverse clinical

consequences of RPE and SARPE in high-angle cases will be explored, and a new approach eliminating these problems by the use of MSE will be presented, based on research data. Clinical cases involving non-surgical midfacial expansion in both adolescent and adult patients will be examined in detail.

However, the success of MSE was not always predictable, especially for mature male patients. Over the last two decades, enormous efforts have taken place in attempts to further understand determining factors. Through clinical studies, computer simulations, and innovative treatment modifications, many of those challenging cases now can be safely treated without significant complications. During the two decades of journeying through the uncharted territory of non-surgical midfacial expansion in mature patients, not only have traditional paradigms been defied, but many initial MSE concepts have also required adjustment. Often, failures would result from misusing the appliance. In this presentation, various ways to accommodate patients with extremely thick or thin palatal bones, narrow palatal vault, massive zygoma, palatal torus, skeletal asymmetry, etc. will be discussed. Application of digital workflow in MSE fabrication and MSE modification could also enhance the success of MSE treatment in difficult cases. Furthermore, for extremely difficult cases, various minor surgical procedures that could aid MSE will be discussed. By applying these innovative protocols, the traditional SARPE can be largely eliminated. Although the outcomes of MSE treatment may not always be predictable at this point in time, significant progress has been made by forward-thinking investigators, and the MSE technique will continue to evolve.

Clinical cases involving non-surgical midfacial expansion in both adolescent and adult patients will be examined in detail. Through these clinical examples, a proper MSE fabrication and updated expansion

protocols will be illustrated. Secondly, other advantages of utilizing MSE will be demonstrated. Clinical cases and research findings illustrating the profound enlargement of nasal airways and functional improvements after MSE in both adolescent and adult patients will be closely evaluated. Furthermore, the airflow improvements will be illustrated by the dynamic airflow measurements directly from the patients and also by the computational fluid dynamics model simulations. The airway obstruction and the Obstructive Sleep Apnea Syndrome (OSAS) are related but the true impact of MSE for OSAS has not been clearly defined. The latest findings regarding the impact of MSE on OSAS will be presented. MSE can also aid in orthopedic correction of Class III cases when combined with a protraction device. The traditional orthopedic correction of Class III patients with RPE and facemask (FM) can often create unwanted dental movements: proclination of the incisors and buccal flare of the molars. By combining MSE with FM, a pure skeletal expansion and protraction is possible, eliminating and reversing these adverse dental side effects. The magnitude and the speed of correction are decisively greater and faster than with traditional treatment results. The high angle Class III problem can be managed with this approach using subsequent vertical correction. Clinical cases combining MSE and facemask (FM) in both growing and mature patients will be discussed, and orthopedic effects will be illustrated. The use of growth modification for young patients and distraction-like protraction techniques for mature patients, in conjunction with this new device, open the door to many new possibilities.



Proper Fabrication and Clinical Procedures

Part I (Lab Work): MSE fabrication (Video Demo)

- NEW 1.** PowerPoint Presentation: the 3D positioning and orientation using CBCT, overcoming difficulties with skeletal asymmetries and thin/thick bones, and troubleshooting
- 2. Proper placement of MSE on the typodont made with synthetic bone
- 3. Contouring the supporting arms
- NEW 4.** Fabrication of modified MSE for patients with thin palatal bone, both manually and digitally
- NEW 5.** Use of the digital MSE placement, uploading of the initial data, and downloading of the final product

Part II (Clinical): MSE insertion, activation and removal, and clinical tips

- NEW 1.** PowerPoint Presentation: Clinical tips through case studies
- 2. Placing prefabricated MSE onto the typodont
- 3. Inserting Micro-Implants into the synthetic bone using both the mini-hand-driver and Ratchet Wrench
- 4. MSE Activation
- 5. Removing Micro-Implants with the min-hand-driver
- NEW 6.** Managing patients with thin palatal bone with both manual and digital procedures
- NEW 7.** Managing Patients with thick palatal bone and/or torus: cortipuncture and piezo-surgery

Learning Objectives

- Overall concept of MSE, Dx and Tx planning, and patient selection
- Craniofacial vs dentoalveolar changes with MSE
- Proper appliance selection and fabrication with digital workflow
- Optimal activation protocol based on mechanical and biological considerations
- Solution for patients with narrow palates
- Solution for patients requiring multiple MSEs
- Asymmetric patients and asymmetric expansion
- Cortopuncture and MSE for challenging cases
- Combining minor surgical procedure with MSE for even more challenging cases
- MSE and airway changes
- Troubleshooting



***The participants can keep the typodont, 4 micro-implants and the MSE (worth HK\$3,500) after the workshop.**

Professor Won Moon will present the use of the digital MSE placement at the workshop of HKIDEAS

