Advanced Mechanotherapy Course

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Dr. Mani Alikhani is Associate Professor in Department of Orthodontics at New York University and Associate Professor in Department of Developmental biology at Harvard school of Dental Medicine. In addition to Orthodontics he studies Physic, biomedical Engineering and molecular biology. Dr. Alikhani is a founding member and Director of the Consortium for Translational Orthodontic Research at New York University (CTOR, www.orthodonticscientist.org), the only center of its kind dedicated to translational research in the field of orthodontics. His research effort in orthodontics and bone biology has produced 5 patents for new and safer treatments to move teeth faster and grow bone in the jaws. He is the author of most current book on Mechanotherapy. He is also author of many articles in peer reviewed journals. Dr. Alikhani has a private practice dedicated to Orthodontics in Brooklyn, NY.

Accelerated Orthodontics

Orthodontists nowadays always pursue more efficient ways to reduce orthodontic treatment duration to create a win-win situation for both patients and practitioners. To achieve this goal, we not only need to make a correct diagnosis and utilize proper mechanics, but gain a better understanding of the biological principles of tooth movement and bone response to orthodontic forces. We will review the factors controlling the rate of tooth movement, introduce some new concepts and technologies developed to accelerate tooth movement in our daily orthodontic practices, and discuss how to select the best technique for different clinical scenarios based on patients' needs.

Learning Objectives:

1. Discussion of most up-to-date scientific evidence on biology of tooth movement in response to orthodontic forces
2. How to select the best techniques to accelerate tooth movement in different clinical scenarios based on patients' needs
3. Learn the latest, efficient and safe approach developed by CTOR to accelerate treatment with micro-osteoperforations, and how to incorporate this technique into your practice for optimal results
4. 'Hands-on' session on the use Micro-osteoperforations

Advanced mechanotherpay: Treatment of Complex Orthodontic Cases with Efficient mechanics

Mechanotherapy for complex orthodontic cases that seek non-surgical treatment can be a challenge. Combining precise mechanics, Temporary Anchorage Devices (TADs), and current advances in bone biology such as cortical drifting can provide alternative treatment opportunities for these patients. In this presentation, we will first provide an overview about the advanced mechanotherapy and mechanical principles of application of TADs. We will then present different clinical cases where the use of these approaches improved and provided more efficient treatment for correction of complex malocclusions.

Learning Objectives:

1. Review of biomechanics of TADs
2. One-couple system and two-couple system
3. How to incorporate advanced mechanotherpay in your treatment
4. Introduction to cortical drifting and how to address skeletal problems in adults
5. Overall strategies for complex cases in adults

Mechanotherapy for Growth modification(application of high frequency acceleration)

During last few years our understanding on biology of growth has changed significantly. Equipped with advances in bone biology and craniofacial biology, our orthopedic treatment for our patient should change accordingly. In this section we will present the current understanding of biology of growth, what should be the target of our treatment and how to accelerate the response to our treatment.

Learning Objectives:

1. Review of current understanding in growth and development
2. Discussion of CNS theory and how it can affect our treatment strategy
3. Review of Orthopedic appliances and how to optimize their usage
4. Review the new technology to accelerate the rate of Orthopedic treatment