

THE EVOLUTION OF THE ROTH TREATMENT TECHNIQUE

THE NEW OVATION SYSTEM

"The Ovation System represents the first comprehensive appliance, auxiliary, and accessory system created to advance our philosophy."

Dr. Roth met Dr. Andrews in 1968. In 1970 Dr. Roth received two sets of the Andrews Straight Wire Brackets to evaluate. Dr. Roth felt that for the most part, the Six Keys were compatible with functional occlusion goals, if the condyle and mandible were in centric relation when the teeth reached maximum intercuspation. Dr. Roth believed that the Straight Wire concept of Andrews was a valuable tool to achieve functional occlusion goals as well as static occlusion goals.

In using the Andrews Straight Wire Appliance, Dr. Roth believed that there were certain changes in the prescription that should be made to bring the tooth positions into slightly over-corrected treatment positions prior to appliance removal. These changes, incorporated into the appliance, would make it a suitable appliance for treatment of the large majority of cases without the need for offset bends in the arch wires or for various prescriptions for different types of malocclusions. This would also reduce the need for a large inventory of bands and brackets and was compatible with achieving functional occlusion goals. Dr. Roth developed his prescription through trial and error on treated cases, and the Roth Rx was commercially made available in 1975. Dr. Roth's occlusion treat-

ment goal is similar to the Six Keys but not identical. His goal is more in line with the "Bioesthetic Occlusion" goals developed in restorative dentistry by Dr. Robert L. Lee.

Over time, many enhancements have been made to brackets, but the Roth Rx has remained unchanged. It works clinically on the overwhelming majority of cases without the need for offset bends in the arch wire. Part and parcel of this success is the coupling of the appliance and Roth Rx with Roth Treatment Mechanics.

Over the years, The Roth Treatment Philosophy has evolved into a system of "Goal Directed" diagnosis, treatment planning, and treatment with measurable criteria in the following areas of concern:

- Facial Esthetics
- Dental Esthetics
- Functional Occlusion and Condylar Position
- Elements Needed for Stability
- Periodontal Health

Using the Roth Treatment Philosophy, Dr. Ronald H. Roth and Dr. Robert E. Williams started the Roth/Williams Center and the Roth/Williams International educational programs. Orthodontists throughout the world have used this approach to orthodontics with a great deal of success. Dr. Roth and Dr. Williams have trained instructors who are clinicians and leaders in orthodontics in their respective countries. Dr. Roth and Dr. Williams have proven without doubt that their methods and results are transferable and repeatable around the world.



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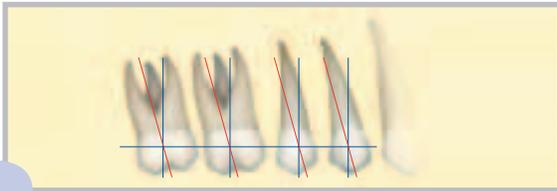
Dr. Robert E. Williams

THE SIX KEYS TO IDEAL OCCLUSION



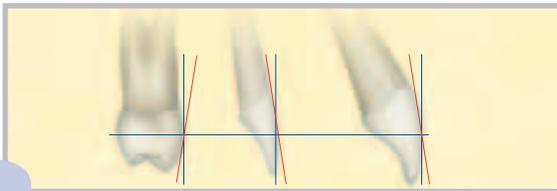
1 THE FIRST KEY: Molar Relationship

The distal surface of the upper six year molar contacts the mesial surface of the lower twelve year molar. The mesiobuccal cusp of the upper six year molar falls in the groove between the lower six year molar mesio-buccal and middle-buccal cusps.



2 THE SECOND KEY: Crown Angulation (tip)

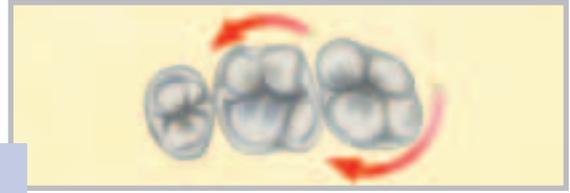
The gingival portion of the crowns of all the teeth is more distal than the incisal or occlusal portion of the crowns. The long axis of all the crowns of the teeth with exception of the molars is considered as the main mid-development ridge of the facial surfaces of the teeth. The long axis of the crown of the molar teeth is considered to be the buccal groove and its extension to the gingival.



3 THE THIRD KEY: Crown Inclination (torque)

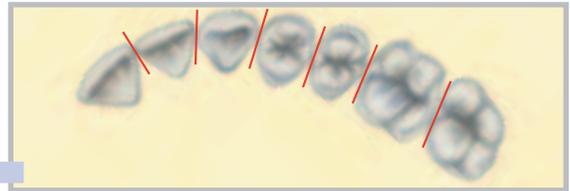
This refers to the labio-lingual axial inclination of the anterior teeth or bucco-lingual axial inclination of the posterior teeth. This is measured from a perpendicular to the occlusal plane to the crown long axis tangent to the mid-point of the middle of the crown. If the crown is facial to the tangent, it is said to have positive torque. If the crown is lingual to the tangent, it is said to have negative torque.

The upper incisors usually have positive torque, the lower incisors usually have slight negative torque. From the upper canine distally the torque is negative, and from the lower canines distally the torque becomes progressively negative.



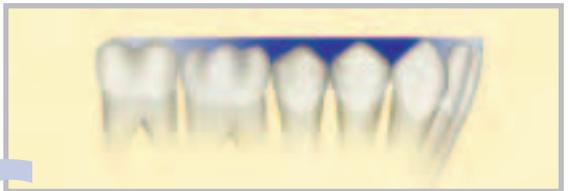
4 THE FOURTH KEY: Rotation

There should be no rotations.



5 THE FIFTH KEY: Spacing

There should be no space between the teeth.



6 THE SIXTH KEY: Curve of Spee

The curve of Spee should be fairly flat ranging from .5mm to 1.5mm at its deepest point with an average curve of Spee of 1mm.

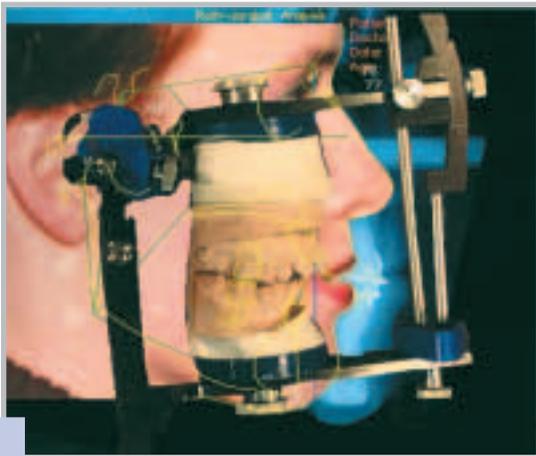
THE SIX KEYS TO OCCLUSION CONTRIBUTE INDIVIDUALLY AND COLLECTIVELY TO FORM THE ESSENTIAL BASIS OF ORTHODONTIC TREATMENT

THE ESSENCE OF FUNCTIONAL OCCLUSION

Functional Occlusion differs from static occlusion in that not only tooth positions are considered in closure, but jaw movement as well. Consideration must be given to condylar position upon closure into occlusion and mandibular border movements as determined by the temporomandibular joints. It is with this in mind that Dr. Roth chose Dr. Robert L. Lee's concept of "Bioesthetic Occlusion" that utilizes Class I buccal segment relationships and natural tooth form. In diagnosis and treatment planning mounting models on the articulator is essential.

The tooth positions are similar to the "Six-Keys" positions of Andrews, but may vary slightly to accommodate functional occlusion goals. Essential to a good functional occlusion is a centric position of the condyles (condyles in the center of the articular disks and against the eminentia, as high up as anatomically possible and centered transversely) when the teeth reach maximum intercuspation. There should be a 4mm vertical overbite after appliance removal and "settling" and a 2-3mm overjet from the incisal edges of the upper incisors to the facial surfaces of the lower incisors. The tip of the upper canines should be mesial to the embrasures between the lower canines and first bicuspid (second bicuspid if an extraction case) and there should be a 1mm cuspid overjet. There should be a transfer of the information from the articulator to the cephalometric tracing to adjust the mandible to centric relation so that planning from centric relation will allow an appropriate treatment plan to treat centric relation.

The new Ovation Appliance in the Roth Rx makes the attainment of functional occlusion goals much easier for the clinician.



1

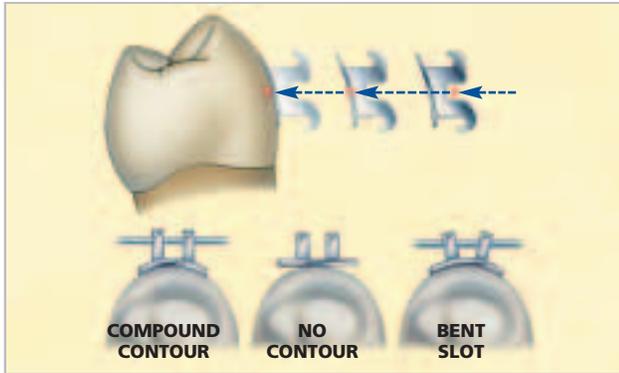
Articulation and
Cephalometric Analysis



2

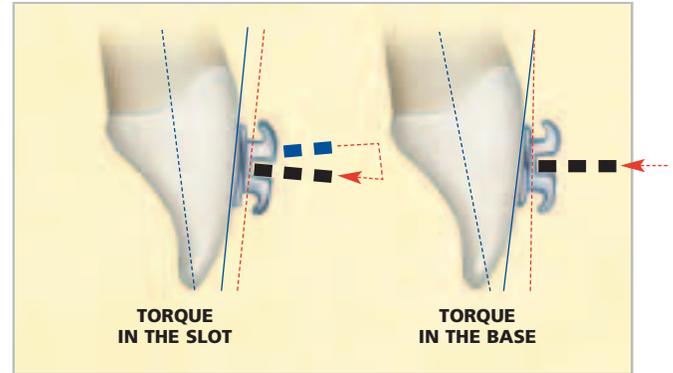
Ideal Occlusion

TECHNICAL SPECIFICATIONS AND FUNDAMENTALS OF PROGRAMMED APPLIANCES



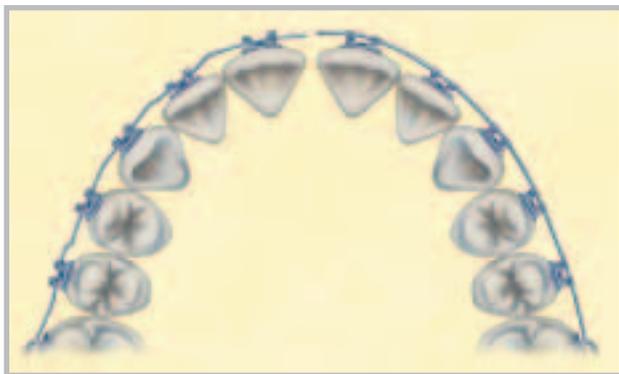
COMPOUND CONTOUR

The design of the appliance base must mirror the mesio-distal and occluso or inciso-gingival curvature of the crown of each tooth type. The base curvature must be the same or slightly more curved than the tooth surface so that the bracket stem and slot are precisely positioned. This allows the appliance to properly transmit the programmed activation.



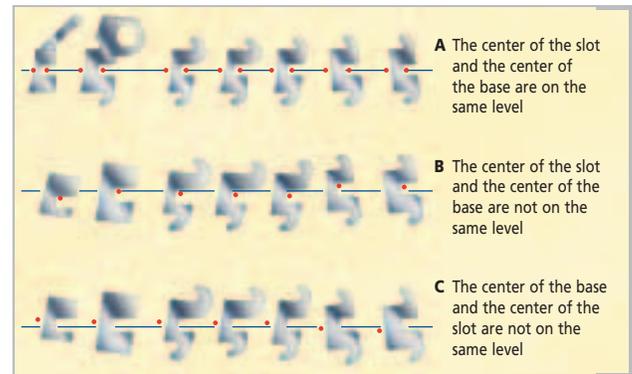
TORQUE IN THE BASE

A fundamental necessity for a programmed appliance is torque in the base, but this must be accompanied by the correct base contouring or it will not work properly. This allows the slot point, the base point (middle of the base) and the reference point on the tooth to be on the same plane, a necessity for proper tooth positioning and level slot alignment.



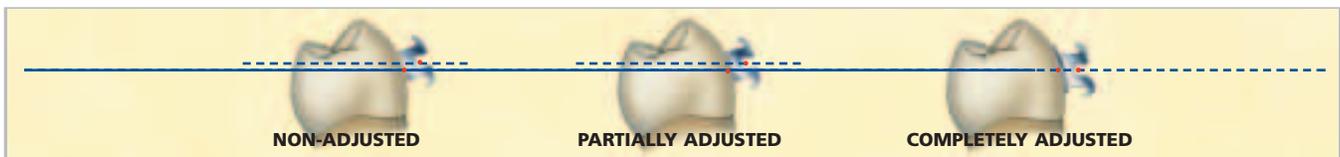
IN/OUT

As a result of the proper thickness relative to the adjacent brackets, in and out (first order) bends are eliminated.



LEVEL SLOT

When all the teeth reach their programmed positions, all four dimensions are correct, allowing alignment, leveling, and parallelism of all the slots on all the brackets around the arch.



THE NEW ROTH RX APPLIANCE SYSTEM

Ovation is a completely adjusted, four-dimensional appliance system that properly positions the teeth at four levels: in/out, angulation, torque, and overcorrection. With this completely adjusted four dimensional appliance system, you will need no offset bends in the archwires to obtain an optimal finish in most cases (if the brackets are properly placed on the teeth). This is the most precise appliance ever built.

In order to be considered a completely four dimensional appliance, it must contain: COMPOUND CONTOURED TORQUE IN BASE, ANGLATION, IN/OUT, AND ANTI-ROTATION, WITH LEVEL SLOT LINE-UP AT THE CONCLUSION OF APPLIANCE THERAPY.