

Rick-A-Nator appliance

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In order to treat orthodontic patients in the 1990's, orthodontic practitioners must have a knowledge of orthopedics, orthodontics and TMJ. Orthodontic cases must be treated to stable joint relationships so the emphasis must be on condylar position rather than just proper interdigitation of the teeth. If the patient has a perfect Class I occlusion at the end of treatment but suffers for the rest of their life with head and neck pain, this can hardly be considered a successfully treated orthodontic case.

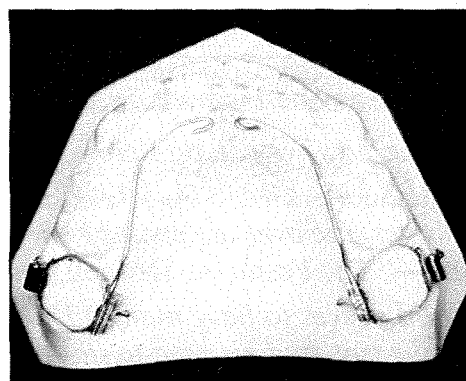
The key to proper treatment is diagnosis. The revelation by McNamara and Moyers that approximately 80% of Class II malocclusions have retrognathic mandibles is very clinically significant. If 80% of the mandibles are retrognathic, we must have something in our treatment technique that advances the mandible. We must learn to use anterior repositioning splints or orthopedic appliances which help establish a correct relationship between the mandible and the maxilla.

It is completely illogical for clinicians to apply mechanics such as cervical facebow headgear, bicuspid extractions and the Wilson distalizing arch which cause a retraction of the maxilla when the patient presents with a normal maxilla and a retrognathic mandible. Clearly, the treatment of choice in these patients would be the utilization of some type of mandibular repositioning and advancement appliance like the Rick-A-Nator. This functional orthopedic appliance does an excellent job of solving both the mandibular deficiency as well as the vertical deficiency in a short period of time with very stable results.

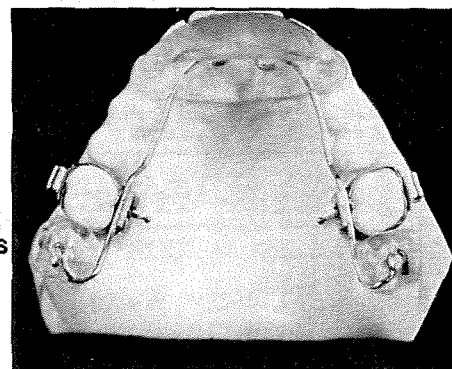
It is important to realize that the muscles, joint and skeletal problems are best treated with orthopedic (functional) appliances and the dental problems treated with the straight wire (fixed) appliances.

The Rick-A-Nator is a very simple appliance which consists of two maxillary first molar bands attached to an anterior repositioning splint via two .040 connector wires. The latest design for the Rick-A-Nator has an extension of acrylic pads which cover the occlusal surface of the maxillary second molars (if erupted). The purpose of these pads is to provide a tripod effect so that when the mandible is advanced, it has anterior contact on the incisal ramp and posterior contact on the second molars. This is ex-

tremely important especially in patients that have numerous signs and symptoms of TMJ dysfunction. The posterior pads prevent the disc from being displaced anteriorly and medially by providing the all-important posterior support for the condyle.



Rick-A-Nator



**Rick-A-Nator
Posterior Pads**

The concept of mandibular advancement is nothing new as the Europeans have been using functional (orthopedic) appliances for over sixty years to treat orthopedic and orthodontic problems. Functional appliances like the Activator (Monobloc), Bionator, Orthopedic Corrector and Frankel Appliance all advanced the mandible to reduce the overjet and allowed the passive eruption of the posterior teeth in an effort to correct the dental overbite. Some problems with these appliances were that they were very bulky and they adversely affected the patient's speech. Also, they were removable and since they had to be removed for eating, co-operation was a major problem. To be effective many of these functional appliances had to be worn 20 hours per day for 12 to 18 months for correction of the overjet and overbite. Due to the

lengthy treatment time and the fact that many patients refused to wear these appliances as per instructions, many clinicians stopped using functional appliances.

One main advantage of the Rick-A-Nator is that it takes control of the wear time of the appliance out of the hands of the patient and allows the doctor to control treatment. Because the appliance is so compact compared to the other functional appliances, the patient has no trouble speaking while wearing the appliance and patient acceptance is much better. The correction of the vertical has always been a problem with functional appliances that rely on the passive eruption of posterior teeth. The Rick-A-Nator has solved that problem with the use of vertical elastics which can drastically shorten treatment time. The fact that the Rick-A-Nator can be worn with the straight wire appliance results in a treatment time in the active phase of 3 to 6 months. Clinicians, parents and patients will enjoy the faster treatment time.

The key to successful treatment with any mandibular repositioning (orthopedic) appliance is proper preparation of the maxillary arch. Only when the arch has been properly prepared can the mandible be advanced to its proper position which ensures stable joint relationships and TMJ health.

Preparation of MX arch

1. Constricted: Slow Palatal Expander, Schwarz Plate, Rapid Palatal Expander, Bonded Hyrax
2. Class II Div 2: Utility Arch, Anterior Sagittal
3. Flared Anteriors: Detorque Labial Bow, Detorque Anterior Chain (Straight Wire)
4. Crowded Anteriors: Align with Straight Wire

Another important factor in the success of the use of any functional appliance involves the airways. Patients have difficulty with most orthopedic appliances unless they have normal airways, normal lip seal and are predominantly nasal breathers. If the patient has a constricted maxilla or a compromised airway, the problem must be rectified. Some solutions include expansion or development of the maxilla, treatment of allergy problems and surgical removal of the adenoids. In many of these cases a consultation appointment should be set up with an ear, nose and throat specialist so that these problems can be addressed and solved prior to the utilization of the Rick-A-Nator or any functional orthopedic appliance.

Construction of the Rick-A-Nator

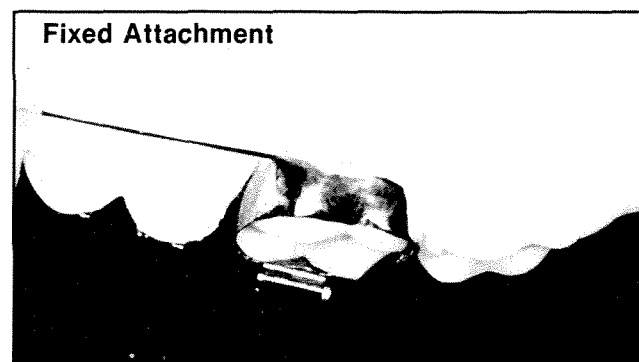
1. Place separators for maxillary molars (3 days prior to appointment).
2. Fit bands tightly on maxillary molars.
3. Remove bands.

4. Take impression of maxillary arch (without bands in place).
5. Take impression of mandibular arch.
6. Pour impressions in yellow stone.
7. Take construction bite.
8. Send upper and lower working models and bands to the lab.
9. Place separators for maxillary molars.

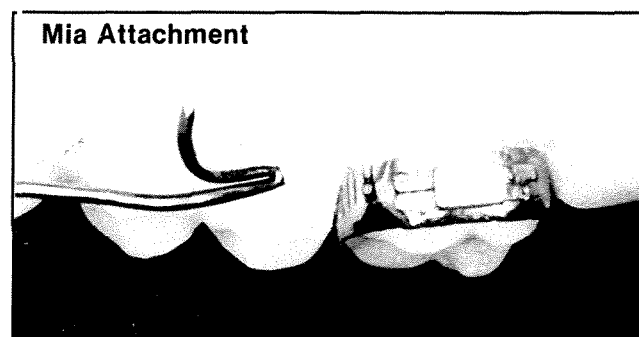
Types of Rick-A-Nators

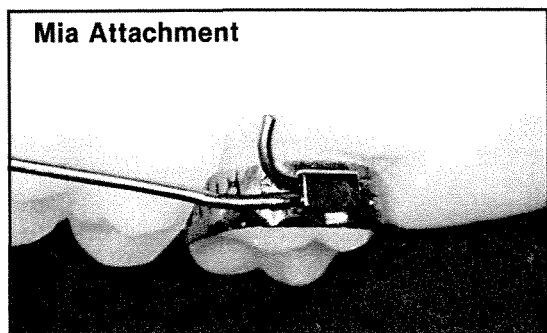
There are basically three main attachments used with the Rick-A-Nator.

a) **Fixed Attachment:** The fixed type has the .040 wires soldered directly to the lingual of the molar bands. One important advantage of this type is that the patient cannot remove the appliance and you are therefore assured of 24 hours of wear time. Also, with the fixed type there is less breakage and the appliance is more stable. The disadvantage of the fixed type is that if the patient wants to remove the appliance to clean it, they cannot. Also, if the clinician wants to remove the appliance so it can be relined with acrylic, this cannot be done without first removing the previously cemented molar bands. For this reason I prefer the fixed-removable types of Rick-A-Nators.

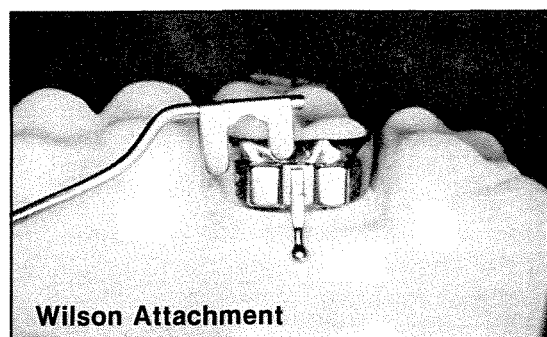


b) **Mia Attachment (fixed-removable):** The fixed part of the mia attachment is soldered to the lingual of the molar band. The removable part is attached to the .040 connector wire and inserts into the fixed part from the mesial. After the molar bands are cemented, the appliance can easily be removed in a mesial direction by the patient as well as the clinician. This is the type usually recommended for adult patients who are excellent co-operators.

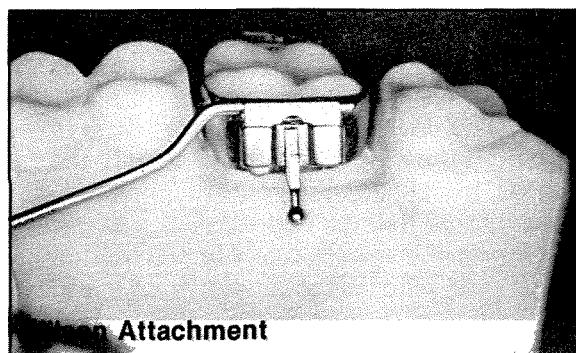




c) **Wilson Attachment (fixed-removable):** The fixed part of the Wilson Attachment is soldered to the lingual of the molar band. The removable part is attached to the .040 connector wire and inserts into the fixed part from a lingual direction. This attach-



ment enables the clinician to remove the appliance with relative ease but makes it more difficult for the patient to remove it. The appliance is removed in a vertical direction. It is important for the appliance to be removed periodically for cleaning, to monitor overjet and overbite and for relining the incisal ramp. If the clinician wants to prevent removal by the patient, then this can be done by attaching the two parts of the Wilson Attachment with .010 stainless steel ligature ties.



Incisal ramp

The key to successful treatment with the Rick-A-Nator is relining of the incisal ramp. The incisal ramp is located lingual to the maxillary anteriors and usually extends from cuspid to cuspid. This incisal ramp (anterior guide plane) must be partially tooth-born and partially tissue-born and must con-

tact the lingual of the six anterior teeth as well as the palatal tissue lingual to the six anteriors. If the acrylic incisal ramp is completely tissue-born it can result in irritation of the tissues; if totally tooth-born it may cause flaring of the anterior teeth.

The purpose of the incisal ramp is to guide the mandible forward to a new protrusive position. To achieve this mandibular advancement and establishment of proper condyle-fossa relationship, the patient must be instructed always to close anterior to the incisal ramp. If they close posterior to the ramp, the overjet will actually increase as the condyles become more posteriorly displaced. If the patient has an overjet of 10 mm. it is imperative that you only advance 5 mm. the first time you relin your incisal ramp. Otherwise, if you try and advance the mandible too much the first time the appliance is inserted, the patient will not be able to occlude anterior to the ramp and your treatment will not be successful.

If the incisal ramp is made correctly the patient will occlude anterior to the ramp about 2,000 times per day when they swallow. After 2 to 3 months, you may remove the ramp and advance the mandible another 5 mm. if necessary to place the mandible in the ideal position with the maxilla. Your treatment will be much more successful if you correct your 10 mm. overjet problem in two stages as outlined.

Technique for adding self-curing acrylic

1. Remove the appliance.
2. Roughen up the acrylic ramp with an acrylic bur.
3. Coat surface with liquid monomer.
4. Mix liquid monomer and powder.
5. Add to processed acrylic ramp.
6. Insert Rick-A-Nator.
7. Have patient bite in predetermined position.
8. Allow acrylic to set.
9. Remove from mouth and trim.

It has been estimated that approximately 60% of orthodontic patients prior to treatment exhibit some signs or symptoms of TMJ dysfunction. Therefore, it behooves the orthodontic practitioner to document these signs and symptoms before, during and after treatment. Based on my clinical experience during the past 15 years in orthodontics, I have affected the TMJ health of my patients either positively or negatively, depending on my treatment technique.

Conventional orthodontic philosophies treat to the habitual bite relationship using edgewise or straight wire techniques. This may involve the retraction of anterior teeth, cervical facebow headgear, bicuspid extraction, Wilson distalizing arch, constricted arches and vertical maxillary incisors which may negatively affect the TMJ.

The functional philosophy is generally a non-

extraction technique and is primarily concerned with the health of the TMJ and facial esthetics. This involves development of the dental arches with fixed and functional appliances, elimination of airway problems, and repositioning the mandible with functional appliances. This development in a transverse, sagittal and vertical dimension will usually affect the TMJ positively.

Conclusion

Since most malocclusions in North America are Class II and since it is estimated 80% of Class II's have retrognathic mandibles, the Rick-A-Nator is an excellent appliance for the treatment of these patients. The treatment of choice is to advance the mandible and erupt the posterior teeth and the posterior alveolar processes. As well as dramatically improving the facial esthetics including the profile, this method consistently results in a healthier TMJ with a reduction and sometimes the complete elimination of TMJ signs and symptoms.

In part 2 of this article to be published later in JGO, I will be giving more details on the clinical application of this appliance. This will include the technique for taking an accurate construction bite, time involved in the active and support phase of treatment, as well as the advantages and disadvantages of Rick-A-Nator treatment. More details will be provided on how the Rick-A-Nator can be worn in combination with the straight wire appliance and how vertical and sagittal correction can be accomplished. Different clinical solutions will be presented utilizing different types of archwires and vertical elastics to correct the dental overbite and skeletal overclosure problems.

In my opinion, the Rick-A-Nator is one of the most important appliances used to treat Class II orthodontic patients and one which has helped many patients achieve functional, skeletal and dental stability.

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Rick-A-Nator Case Report

Male Age 16

Profile: Retrognathic

Functional Problems: Tight Mentalis

TMJ Signs: Several sensitive trigger points
Clicking both sides
Bruxism

TMJ Symptoms: Tenderness around both eyes
Right ear ringing, popping noises, pain
Neckaches

Skeletal Problems: Class II Skeletal
Normal Maxilla
Retrognathic Mandible
Skeletal Closed

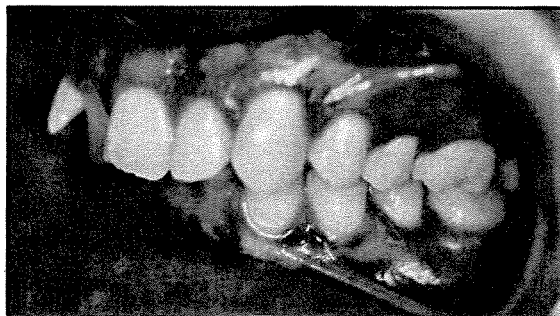
Dental Problems: Overjet 6 mm.
Overbite 7 mm.
Protrusive 32/3
Deep Curve of Spee

Chief Complaint: 2/ Flared

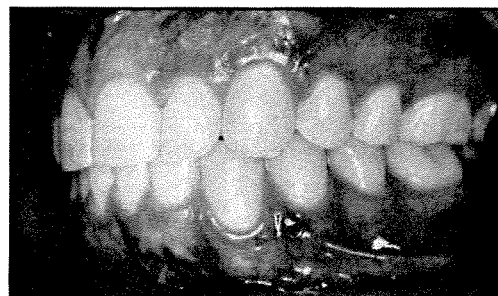
Treatment Plan: a) Straight Wire Appliance
Align maxillary teeth
b) Rick-A-Nator
Advance mandible
Erupt lower posterior teeth
c) Reduce TMJ signs & symptoms

Start Treatment: April 1988

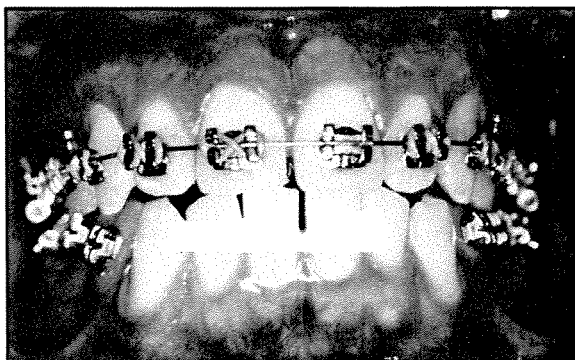
Finish Treatment: October 1990
Straight Profile
No Clicking
No Ear Problems
Normal Range of Motion
Reduced Number Trigger Points



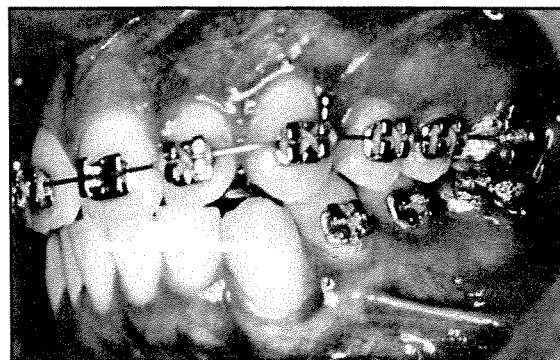
**Initial Left Lateral
April 1988**



**Final Left Lateral
October 1990**



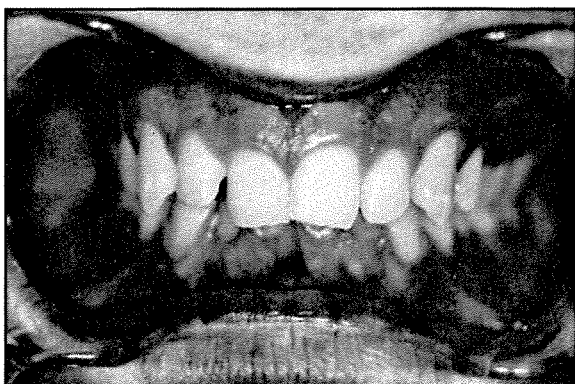
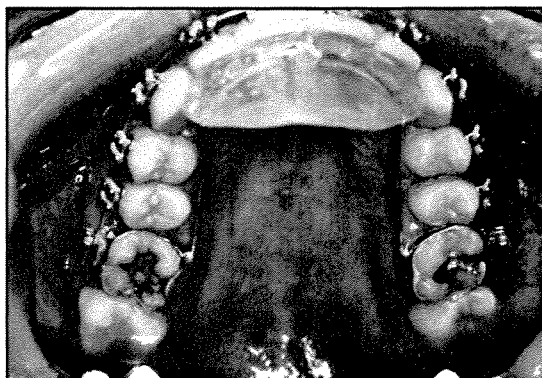
With Rick-A-Nator
September 1989



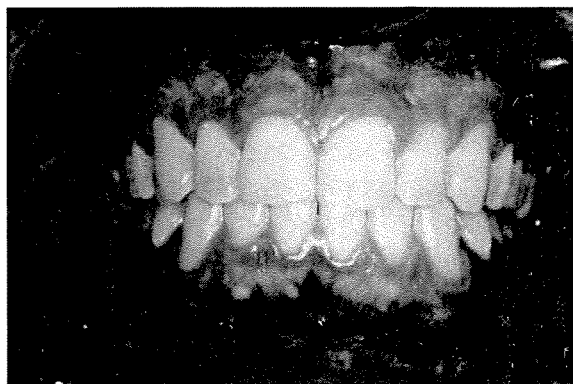
With Rick-A-Nator
September 1989
Erupt

6	5	4	4	5	6
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Rick-A-Nator
Fixed Type



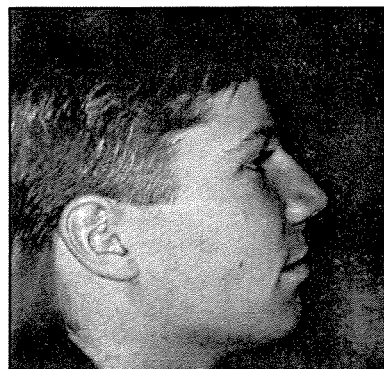
Initial Frontal April 1988



Final Frontal October 1990



Initial Profile
April 1988



Final Profile
October 1990