

# AOA appliances, etc.

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And Blue System  
...A great topic for your  
next staff huddle.

## Thinking Appliances

### What's New!

We are pleased to offer our 12th edition of AOAppliances, etc., which features articles from Dr. Randy Moles on his new Bionator style appliance and MARA updates from Dr. James Eckhart. We thank both of them for their contributions and continual support of our laboratory.

Dr. Randy Moles, Racine, Wisconsin, is sharing his interest of combining a flexible Elast-Acrylic™ material into a Bionator style configuration, which helps stabilize and enhance completed Fixed Functional therapy. The unique characteristic of the flexible Bionator material is to become soft and flexible when warmed and then firm after seating, a significant improvement over other types of post orthopedic retention appliances. This is typically a post-treatment appliance as a result of the patient wearing a Herbst® or MARA Appliance.

Dr. James Eckhart, Manhattan Beach, California, is offering "pearls" on the popular MARA. The "U" lower arm modification has proven to be extraordinarily useful with deep Curve of Spee Class II patients wearing the MARA Appliance. Dr. Eckhart also maintains that it's configuration also enhances nighttime wear by staying engaged with the upper MARA unit -- even if the mouth is moderately open.

We also look forward to seeing you at the upcoming Orthodontic Fall Component Meetings -- it is always enjoyable seeing old friends, introducing ourselves to new offices and exchanging current thoughts on appliance trends. AOA will be at each show -- stop by and say hello.



**Dr. Randy Moles** received his dental and orthodontic training from Marquette University, where he has served as associate professor of orthodontics and guest lecturer. He has been active in the research and development of new orthodontic products and has lectured and published in the areas of TMD and practice management. Dr. Moles is the author of *Ending Head and Neck Pain: The T.M.J. Connection*, a book directed to sufferers of chronic headache. He has patented a custom scuba mouthpiece (marketed under the name *Seacure*) that reduces the jaw pain and fatigue that divers commonly experience. Dr. Moles is engaged in the private practice of orthodontics in Racine, Wisconsin.



Fig.2

## THE FLEXIBLE BIONATOR

### TO RETAIN SKELETAL CORRECTIONS

The name of the game, after successful AP correction during Phase I, is retention. This is because skeletal change requires time. This is evident by such historical practices as Chinese foot binding or the head shaping engaged in by other cultures.

Unfortunately, the time spent on skeletal correction during Phase I treatment, is small, compared to the total period of growth. When that change calls for mandibular advancement, utilizing a CBJ, MARA, or Herbst®, retention of mandibular position is critical. Since there is evidence that some of this maxillomandibular correction is lost, the ability to maintain an advanced mandibular position is important. How can we maintain this improved skeletal relationship during the interphase period, and assure good patient cooperation, which is so critical to the entire process? Individual arch retainers do nothing to maintain mandibular position, of course, functional appliances made of hard acrylic can be used. However, they require frequent adjustments, and often are not tolerated well. The solution is a bionator made out of a "semi" flexible material such as "Elast-Acrylic™", which overcomes these problems and offers control of the maxillomandibular



Fig. 1

relationship. "Elast-Acrylic™" becomes pliable when warmed and this property makes the appliance very comfortable when seated. In addition, it will continue to accommodate changes in the dentition that occurs during the inter-phase period. If the patient happens to leave it out for a few days, flexibility allows it to be re-seated, and it will correct any relapse in the dentition. It is comfortable for the patient, eliminates the need for new retainers, and reduces non-productive office visits for adjustments.

The shape of the "Flexible Bionator" (See Fig. 1) is similar to the acrylic bionator. There are sockets for all four maxillary and mandibular incisors, in addition, to the first molars. This provides retention for these teeth, in addition to positioning the mandible. Small adjustments can even be made in the incisors by requesting that they be reset or sockets can be provided for erupting teeth. The area between the incisors and permanent molars is left open for the eruption of permanent cuspids and bicuspid. (Fig. 2)



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The custom made flexible bionator offers several advantages over “off the shelf” soft retainers.

1. The Flexible Bionator is better for developing TM joints because it is custom fit to the intermolar space (freeway) and occlusal plane.
2. It allows for a more precise fit and retention of the anteriors.
3. It allows for changes in the position of the anteriors per the Doctors prescription.
4. The thickness of the posterior can be varied to assist in closing or opening the bite.
5. Headgear tubes can be added for additional force.

Fabrication of the “Flexible Bionator” requires upper and lower impressions with good extension especially in the mandibular lingual area. A wax bite occlusal record is taken using a 4 mm horseshoe of red wax (Fig. 3). Positioning is the same as any functional appliance. Edge to edge for the Class II skeletal pattern, and “on the hinge” for the Class III. It is also important to make sure the midlines line up, when taking the occlusal record.

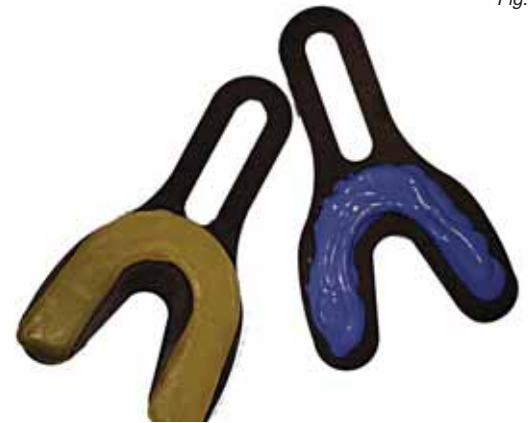


Fig. 3

AOA Bite Guide in 2mm or 4mm thickness, provides a positive stop for the patient's vertical opening.

The prescription should indicate whether the intention is to open, close or maintain the vertical. Any changes in anterior tooth position should be noted along with any request for headgear tubes. Also, indicate that you want the bionator made with “Elast-Arcyl™”. These appliances can be made prior to debonding for immediate insertion (request removal of the brackets and bands from the plaster cast), or for insertion at a later visit.

The patient is instructed to wear the appliance every night after supper, and sleeping. (Not just sleeping). If the appliance should come out at night they are to wear it more the next day. (Putting it in right after school.) Breathing is not a problem, because the sides are cut away unlike a positioner (Fig. 4). The patient is seen every four to six months. The Flexible Bionator is an extremely comfortable and effective retainer for the maintenance of dental and skeletal correction. It is kind to the TM joints, allows for adjustment, and eruptions. Easily integrated into the practice. I think you'll find it a useful addition to your treatment protocol.



Herbst® and Mara™ Fixed Class II correctors

Transition  
Retention



AOA Elast-Acryl™ Flexible Bionator

Fig. 4

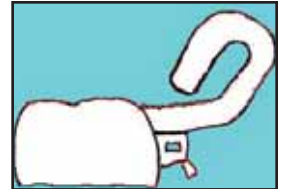
Herbst® is a Federally Registered Trademark of Dentaaurum, Inc.

## Updating The Mara



Dr. James Eckhart, DDS  
Manhattan Beach, CA

While the MARA has proven itself clinically and in University study as an efficient durable Class II corrector in certain cases it can be enhanced with a modification to the lower Arm element. I hope this article will aid in expanding and improving MARA use with deep curve of Spee patients.



In deep bite cases, when you advance the lower jaw, there is a big posterior open bite, which makes it hard for the upper elbow to stay engaged behind the lower arm. If they do not stay engaged, the appliance is ineffective. This was a criticism from Dr. Herbst 100 years ago, that if patients can disengage from vertical abutment surfaces, they will, and the appliance fails... hence his development of his "retention joint" appliance, today known as the Herbst.<sup>®</sup>

To overcome this disengaging, I first tried longer vertical arms on the upper elbows. This worked poorly, because the vertical arm had to be torqued buccally to clear the lower crown buccal surface, which meant that the sweepback leg of the elbow was too buccal to prevent the lower arm from biting medially to it when the patient retracted the lower jaw. Hence the patient could retract the lower jaw and lock up the elbow and lower arm, or even if they did not lock up, they were getting no Class II correction.



Standard MARA Lower Arm

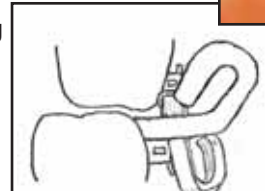
What has worked quite well has been to turn the lower arm upside down, so that the loop, instead of dropping down vertically from the perpendicular projection, now angles upward at around 45 degrees. This allows the loop to clear the upper teeth when the bite closes, yet provides several more millimeters of vertical engagement between the lower arm and the upper elbow. It usually takes a little adjusting to get the upper elbow vertical arm torque and upward-projecting lower arm loop correctly balanced so that they collide when the patient tries to retract the lower jaw, but this is easily accomplished provided you have the correct tools.

### Here is what it looks like...

The correct tools to adjust the torque of the upper elbow vertical arm are the torquing tool provided by AOA, which slides onto the horizontal leg of the elbow to hold it without nicking it, while bending the vertical leg of the elbow buccally or lingually with a Weingart utility plier.



The correct way to adjust the lower arm is first to have the lower arm soldered upside down, so the loop points up. (AOA will do this if requested). Then, holding the crown between the jaws of the square-jawed lingual arch forming plier by gripping the crown buccal surface directly over the arch wire tube, using your other hand bend the lower arm loop buccally as desired using a Weingart utility plier. The lab will do this for you unless you are ordering e-MARA. If the lower arm is already soldered with the loop hanging down, it can still be bent upward using the technique above.



The "U" modification to the Lower Arm. Note blocking enhancement for deeper Curve of Spee occlusal planes.

Needless to say, if you have an RPE on the upper MARA crowns and intend to widen the upper arch, do that before placing any lower MARA crowns with upward-directed loops, or else the lower will interfere with the expansion.



The upward-directed lower loops in some cases will abrade the ligature, which holds in the upper elbow. The way to avoid this is to bend the free end of the elbow's tieback ball-hook distally and then curve it back anteriorly, creating a recess on the anterior surface of the free end of the ball-hook which will harbor the ligature so that the ligature cannot slip off nor be abraded by the lower arm loop.



If the horizontal leg of the upper elbow gets locked under the perpendicular leg of the lower arm, adjust it with a small-beak 3-prong plier.



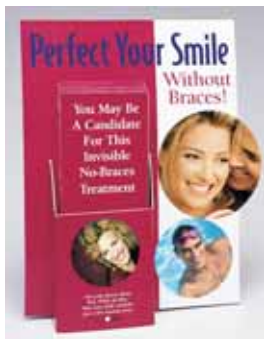
If you wish to order the MARA with the lower arms pointing upward, it is called the MARA-U. Gerry Engelbart (the head of the MARA section at AOA) knows what you mean if you say MARA-U. I order it frequently, because it usually works better.





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## The Versatile Red, White & Blue System .....a great topic for your next staff huddle

AOA can provide the direct marketing materials for your waiting area, or your referring dentists' offices. These professionally designed resources will catch the eye of your patients as well as educating them about the possibilities of this unique treatment option. You are reinforced, as the dental professional, in this literature as the person to guide the patient to the best treatment technique

### Where does the Red, White & Blue system fit into your practice?

- Minor incisor alignment - Patient doesn't want to wear "braces".
- Positioning anterior teeth for future restorative treatment.
- Detailing anterior alignment when patients transition from brackets to retention.
- Refining post - ortho patients that may be concerned about slight relapse.



### Let the patient touch and examine the appliances.

AOA has developed a Typodont Consultation Kit to allow the patient the opportunity to "check-out" the appliance and buy into the system. Cost to the practice is easily made up with the first patient, and the typodonts are made of AOA's exclusive non-breakable model urethane plastic. The binder keeps the set organized and ready to use.



Call your Customer Support Representative and ask to have our literature forwarded to your office. Pass it around at your next "huddle" and see if this great product has a place in your practice.