

### The Truitt Class III Appliance™



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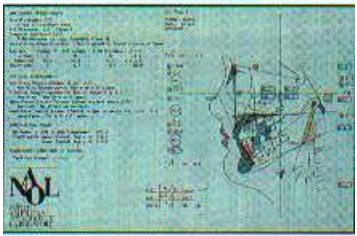


Fig. 1 Bimler Analysis



Fig. 2



Fig. 3

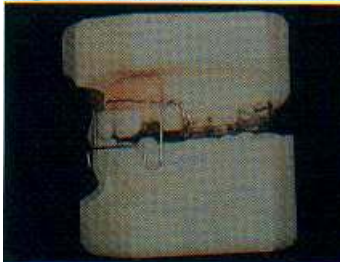


Fig. 4

The treatment of a Class III patient has always presented the clinician with a series of sometimes complex diagnostic and therapeutic problems. I am writing this article in an attempt to clarify what I feel is the appropriate treatment protocol for a Class III patient, as well as to introduce you to a new appliance that I have designed for Class III therapy.

The treatment objectives for the Class III patient are three:

- (1) to reduce the growth in the size of the mandible as much as possible.
- (2) to increase the size of the maxilla to its maximum genetic potential.
- (3) to move the maxilla forward to its maximum genetic potential.

These treatment objectives are best obtained by treating the Class III patient as early in the growth cycle as the Class III problem can be diagnosed.

The Bimler cephalometric analysis is ideally suited to correctly diagnose the Class III patient. The size of the mandible (D.L.M.) and the position of the mandible (T-TM) can easily be related to the length of the anterior cranial base (N to S). The size of the maxilla (A-T) and the position of the maxilla (factor #1, A-N) can also be related to the size and position of the anterior cranial base. (See fig. #1)

Use of the Bimler analysis allows the doctor to make an accurate diagnosis as to the cause of the Class III, and in turn, an accurate prognosis as to a surgical or nonsurgical treatment plan. The clinician should remember that even if the Class III patient requires orthognathic surgery it is far preferable to have the maxilla fully developed in its size and position, and the size of the mandible maintained as small as possible prior to any surgical intervention.

The Truitt Class III Appliance is designed to treat the size and the position of the maxilla, and to retard the growth rate of the mandible with a minimum amount of "hardware. This not only simplifies the treatment procedure, but also adds to patient acceptance and compliance. (See fig. #2)

The Maxillary portion of the appliance is a modified Schwarz plate. These modifications include the following:

- (1) Occlusal coverage of acrylic with a minimum thickness of 1 .5mm posteriorly to prevent fracture. If an anterior crossbite is present then the thickness of the acrylic is increased to allow for the clearance of the teeth. Once the anterior crossbite has been corrected then the acrylic thickness is reduced to a minimum 1.5mm to improve patient comfort. It should be noted that the patient must eat in the appliance until an anterior crossbite is corrected. If the Class III patient also has an anterior tongue thrust then not only does the appliance have occlusal coverage of acrylic, but the appropriate tongue wires and palatal spinner should be added, as well as myofunctional swallowing therapy initiated. (See fig. #3) The patient must also eat in the appliance to close the anterior open bite.

- (2) If the patient is in the primary or mixed dentition the sagittal size of the maxilla should be ascertained from the Bimler cephalometric analysis. If the sagittal size of the maxilla is small (A-T measurement to the anterior cranial base) then -Frankel111-pads are added to the appliance to stimulate maxillary growth. (See fig. #4)

- (3) Elastic hooks are placed on the maxillary first molars and the maxillary first bicuspid (deciduous first molars). These hooks



Fig. 5 Pedo Headgear



Fig. 5 Standard Headgear

are usually soldered to the Adams clasps (See Fig. #4), but they can also be incorporated into the occlusal acrylic, or placed directly upon the appropriate teeth.

(4) Expansion screws are incorporated into the appliance to develop the sagittal and transverse size of the maxilla. (See fig. #2)

The mandibular portion of the appliance is a modified Hawley labial bow. The labial bow is constructed of heavy .036 steel wire. It extends from the occlusal acrylic downward, it is formed into a standard Hawley loop, and engaged into the gingival one-third of the mandibular incisors. (See fig. #4)

**Activation of the appliance:** The occlusal acrylic is adjusted like a flat plane splint. There should be no lower cuspid guidance to prevent an anterior displacement of the miniscus within the temporomandibular joint.

The expansion screws are turned one time (1/4mm) every five days in the primary and mixed dentition. This adjustment should be reduced to ten and fourteen days respectively if the patient has an anterior open bite. The maxilla should be developed as large as possible to assist in controlling the Class III problem. Therefore, the expansion screws are activated until the teeth begin to tip upon the alveolar ridge. This tipping is a clinical indication that maximum arch size has been obtained both sagittally and transversely.

Intra-oral and extra-oral Class III elastics are attached to the appliance to advance the position of the maxilla and to retard the growth of the mandible. The extra-oral elastics begin at 5/16" eight ounces for one niohiilY, and are incrääséd tO sixteen ounces by placing two elastics on each side of the appliance. The elastics are attached to the appliance at the maxillary first bicuspid (deciduous first molar) area and worn to the reverse pull headgear. The pedo design headgear is used in the primary and mixed dentition, the standard design headgear in the permanent dentition. (See fig. #5). These elastics should be worn for a minimal time of ten hours per day with the patient exceeding this minimal amount as much as possible. For example, full time use of the reverse pull headgear when the patient is not in public and able to do so. The intra-oral elastics are placed in a Class III direction from the maxillary first molars to the loops on the Hawley labial bow. The size of these elastics are 3/16" four and onehalf ounce in the primary and mixed dentition and 5/16" four and onehalf ounce in the permanent dentition. It is very important to understand that intra-oral Class III elastics have a different vector of force compared to extra-oral Class III elastics. Extra-oral Class III elastics pull at a horizontal or parallel relationship to the maxillary plane. Therefore, their reciprocal force is balanced between the frontal bone and the mandible which in turn creates only a horizontal force within the temporomandibular joints. Intra-oral Class III elastics place a diagonal force upon the mandible which can in turn cause the mandibular condyles to be displaced off of their respective miniscus. Therefore, intra-oral Class III elastics have the following limitations that must be applied to any appliance: (1) They must never be used on anypatient who is experiencing temporomandibular joint dysfunction. In other words the T.M.J.'s must be healthy to tolerate intra-oral Class III traction. It is also important to understand that intra-oral Class III elastics must be terminated if the patient acquires any form of joint dysfunction.

(2) Intra-oral Class III elastics must be worn intermittently to allow the mandibular condyles to decompress within the glenoid fossa. This allows for proper circulation to be restored within the joint complex.

Therefore, the most satisfactory combination of intra-oral and extraoral Class III traction is for the patient to wear the intra-oral elastics during the day, removing them only for eating and hygiene. The extra-oral elastics are worn at night and as much during the day as is possible in conjunction with the intra-oral

elastics. It should be noted that special reverse pull face masks are available for patients suffering from severe temporomandibular joint dysfunction. These reverse pull face masks are designed to keep **all** reciprocal forces completely off of the mandible. The lower labial bow of the appliance must be adjusted monthly into firm contact with the mandibular incisors. This adjustment is best accomplished by using the 3-jaw pliers to constrict the size of the loops. Remember to keep the labial bow contacting the gingival onethird of the mandibular incisors which keeps tipping to a minimum.

Once the Class III problem is corrected the appliance and the intraoral and extra-oral Class III elastics are worn as retainers at night until the patient is ready for final orthodontic correction in fixed appliance therapy. The orthodontic portion of the treatment is best delayed until the patient has completed their pubital growth. The orthodontic therapy must be centered around the principles of maintaining the Class III dento alveolar base compensation within the lower arch and “burning anchorage” in the upper arch. No retrusive mechanics should ever be used on the maxillary dentition in a Class III situation.

I think that you will find this new appliance highly effective in treating Class III patients. The Truitt III appliance is available only through North American Orthodontic Laboratory and its international affiliates.

If you would like additional information on the appliance please contact Mr. Frank Fox or Mr. Bobby Middle. Tel. 1-800-521-2351 or Fax 1-817-665-9712.