

# ORTHODONTICS

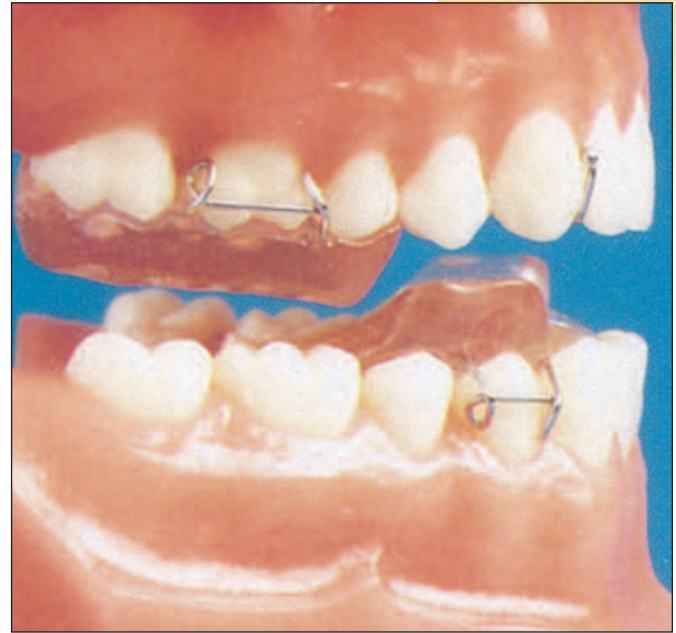
## TWIN BLOCK

# 4

### A New Approach In Functional Orthopaedics

The use of functional jaw orthopaedics, at the correct time during growth, can ultimately result in maloccluded patients achieving a broad beautiful smile, an excellent functional occlusion, a full face with a beautiful jaw line and lateral profile and, most important of all, a stable and healthy temporomandibular joint. In recent years, a wide variety of appliances have been successfully used to achieve a proper functional occlusion. Many of these appliances shared one major disadvantage. The upper and lower components were joined together, making it difficult for patients to speak and function normally. Eating with the appliance was out of the question. The end result was poor patient compliance.

Unlike one-piece functional appliances, Twin Block has two separate, unattached upper and lower bite block components - actually two appliances which work together as one. In function, these two appliances interlock at the 70 degree angle set into the bite blocks and posture the mandible forward into the ideal Class I position preset by your wax registration.



### Treatment Overview

A two stage treatment, the Active phase involves the use of the removable Twin Block appliance to reposition the mandible forward until the overjet and overbite are corrected. When that occurs, the first molars will be in contact and the maxillary and mandibular incisors will be nicely coupled. To ensure the patient does not have a dual bite, the appliance is worn a minimum of 7 to 9 months.

Once the active phase of the treatment is completed, the Stage 2 - Support

Phase commences. An upper removable appliance with a steep anterior incline plane is used to retain the corrected incisor relationship until the posterior occlusion is fully integrated. This usually takes 4 to 6 months and is continued for an additional 3 to 6 months to allow for functional re-orientation of the muscular complex.

The Twin Block system is also designed to be utilized with fixed appliance therapy to expedite treatment while at the same time increasing control through better mechanics. For example, this system can be added to fixed Quad Helix appliances for young patients. It can also be used in conjunction with full arch fixed cases for patients of all ages where vertical or AP (anterior/posterior) problems need to be corrected in a timely manner.



Upper Twin Block appliance.

### Features and Benefits

1. The Twin Block's high comfort level allows it to be worn 24 hours a day - even while eating. This versatile design allows you to take advantage of all the functional forces applied to the dentition during mastication leading to faster results and shorter treatment times.
2. The mandible is free to move normally in anterior and lateral excursions without being restricted by a bulky one-piece appliance.
3. Control and correction of upper and lower arch width and length can be done independently, at the same time that skeletal changes are being made.
4. Patients speech is normal as tongue movement is not restricted.
5. Patient appearance and profile are noticeably improved immediately. This is an excellent patient motivator.

## Indications:

- versatile enough to treat the following malocclusions:
  - Class II division 1
  - Class II division 2
  - Class I open bite
  - Class I closed bite
  - Class III
  - Lateral arch constriction
  - Anterior/posterior arch length discrepancies
- Can also be used effectively in TMJ therapy

## Contraindications and Concerns:

- main objective of Class II treatment is to properly relate the mandible to the maxilla in three dimensions: transversely, antero posteriorly and vertically.
- this requires the maxilla to be in the correct position first.
- Treat or consider treating the following conditions prior to placing a Twin Block appliance:
  1. Maxilla must be proper width transversely. If it is not, when mandible advanced, posterior teeth will be in buccal cross-bite and case will not be stable.
  2. Ensure there is no skeletal or facial asymmetry (often seen in patients that have a unilateral cross-bite).
  3. Maxillary incisors must be torqued correctly.
  4. Maxillary incisors should not be too vertical or lingually inclined (such as a Class II division 2 case). The maxillary incisors must be in the correct position for the clinician to know where to place the mandible.

## Treatment Procedures:

1. As always, proper appliance selection and application requires good diagnosis and treatment planning. Take a complete medical and dental history including Periodontal records, X-rays (full series), Cephalometric x-ray and analysis, Models and Photographs.

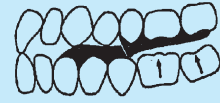
Obtaining these records will also alert you to additional treatment needed.

2. Take an accurate construction bite. The bite should register a 2 mm vertical clearance between the upper and lower incisors and the midlines should be aligned. The anterior positioning of the mandible should bring the incisors edge-to-edge (assuming that there is not excessive upper anterior flaring and that the position is comfortable for the patient).

Except for making the proper diagnosis, the bite registration is the most important thing the clinician must accomplish correctly. **IT IS IMPORTANT TO CHECK THE COMPLETED CONSTRUCTION BITE ON THE WORKING MODELS.** Check for proper mid-line, AP and vertical correction and then carefully wrap the bite separately for shipment.

3. The lab requires accurate models with good lingual extensions on the lower model. Occlusal surfaces should be bubble free. Provide a complete prescription. The Twin Block is a very versatile appliance. It can be designed with many different clasps, springs and expansion screws so it is very important to give the lab your exact specifications.
4. Upon delivery of the appliance, the clasps should be adjusted to hold the appliance securely. It should be explained to the patient that Twin Block is a 24-hour-a-day appliance. They should even eat with the appliance in place.
5. Adjustment of the occlusal plane:
  - A. In cases with a deep overbite, the upper block should be slightly trimmed occluso-distally to leave the lower molars 1 mm clear of the occlusion to allow for eruption (See EXHIBIT 1).  
This is usually done at the first visit, with subsequent reductions performed, as needed, until the proper vertical relationship is established.
  - B. In cases with reduced overbite (or open bites), it is very important that NO trimming is done on the blocks. In these cases, all posterior teeth must remain in contact with the blocks to PREVENT eruption of the posterior teeth.

## EXHIBIT 1



### Step 1

Trim upper bite block occluso-distally to encourage eruption of lower molars.



### Step 2

Continue gradual upper bite block reduction over period of several months until molars are in occlusion, then...



### Step 3

Trim blocks gradually in premolar region to allow them to erupt into occlusion.

6. Appointment Scheduling:

**First Appointment:** Delivery of the appliance and patient instruction. Adjustment of the occlusal planes.

**One Week Later:** Adjust the bite blocks if the lower molars have erupted into contact. For arch development, have the patient begin expansion screw activation at one turn per week.

**One Month Intervals:** Check adjustments. Watch for proper vertical, lateral and AP development.

7. Once the first phase of treatment is completed (i.e., the case is at the desired vertical and AP position), place a Phase 2 or "Support Appliance".
8. Once you have corrected the patient's orthopaedic (functional) problem, it can be determined whether they will need to continue further treatment using a fixed appliance for final levelling, rotation or alignment of individual teeth.

## Appliance Care:

1. Twin Blocks should only be taken out for cleaning. Clean after every meal as food will collect under the appliances. Scrub thoroughly with a toothbrush and toothpaste, then rinse with cool water.
2. Show the patient how to remove and insert the Twin Blocks by using the acrylic, NOT the wires, to dislodge the appliance.
3. Instructions should also be given on how and when to adjust any expansion screws.

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