

## REVIEW ARTICLE

# Myobrace: Say No to Traditional Braces

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## ABSTRACT

Comprehensive research has shown that mouth breathing, tongue thrusting, reverse swallowing, and thumb sucking are known as incorrect myofunctional habits that are the real causes of malocclusion. These habits limit the child's craniofacial development resulting in orthodontic problems. Myobrace is the orthodontic appliance that is preformed functional orthodontic device, especially used in interceptive orthodontic cases. Its mechanism of action is a combination of a functional device, positioners, and a myofunctional therapy device. These appliances straighten the teeth as well as correct the development of jaws and any adverse oral habits that are caused due to underdeveloped jaws. The purpose of this study is to describe the appliance, in particular its structural characteristics and its mechanism of action.

**Keywords:** Myobrace, Myofunctional, Trainer system.

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## INTRODUCTION

Comprehensive research has shown that mouth breathing, tongue thrusting, reverse swallowing, and thumb sucking, known as incorrect myofunctional habits, are the real causes of malocclusion. These habits limit the child's craniofacial development resulting in orthodontic problems. Over the last 20 years, myofunctional research has developed orthodontic appliances to improve the dental and facial development of children from 5 to 15 years of age, using myofunctional orthodontic techniques instead of traditional orthodontics.<sup>1</sup> This technique not only straightens teeth but also treats the causes of crooked teeth and incorrect jaw development.



Fig. 1: Myobrace appliance

The treatment using MRC's appliance systems, such as the Trainer System Myobrace and the Farrell Bent Wire System can avoid the limitations of fixed appliances while achieving better results and improved case stability all with less chairside time.<sup>2</sup>

Myobrace (Fig. 1) are preformed orthodontic devices, designed for the treatment of malocclusions in patients in late mixed dentition (8–12 years). It can be used also in adult patients, nonextractive cases, and mild or moderate malocclusions. It works promoting the balance of facial and masticatory muscles, and improves the posture of the tongue. Its purpose is to get a myofunctional effect, together with a dental alignment and a mandibular development.

## DISCUSSION

Myofunctional research has pioneered the use of appliances to correct myofunctional habits in growing children and has proven successful in orthodontic correction without braces. This treatment can also lead to better facial development in growing children. The key to this treatment is correcting the position and function of the tongue, obtaining correct nose breathing, and retraining the oral muscles to function correctly. Myobrace appliances effectively train the tongue to position correctly in the upper jaw, retrain oral musculature, and exert light forces to expand the jaws and align the teeth.<sup>1</sup>

### Treatment Goals and Outcomes

- Patient needs to breathe through their nose<sup>3</sup>
- Lips must be together at rest, and the tongue must be in the correct position<sup>3</sup>
- No visible lip activity should be there when swallowing<sup>3</sup>
- Improved facial development by allowing the patients to reach their full genetic potential<sup>3</sup>

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- Class I occlusion with a correct bite<sup>3</sup>
- Straight teeth.<sup>3</sup>

### Treatment Actions

- The patient must wear the appliance for 1 to 2 hours each day and overnight while sleeping.
- Regular, everyday use is necessary. If it is not worn every day, it's not going to work.
- At least one myofunctional exercise must be completed every day.
- The patient must learn how to swallow correctly and position the tongue in the correct place in the mouth.
- Patients must keep their mouth closed when not speaking or eating.<sup>1</sup>

Before discussing the myobrace, one should know about the other MRC systems. The Trainer System™<sup>4</sup> (Fig. 2) is a single-size, prefabricated dental appliance that incorporates both myofunctional and tooth-positioning characteristics. No impressions, no molding, and no fitting adjustments are required. Phase I (soft) appliances are more flexible in order to adapt to a wide range of malocclusions. Phase 2 (hard) appliances usually follow after 5 to 8 months of Phase I appliance. They are of various types.

The Infant Trainer™ is an active exerciser that encourages patients to chew correctly while using the jaw muscles. It helps patients breathe through their nose and it also trains them to swallow and position their tongue correctly.<sup>4</sup>

The T4K is the most effective in early mixed dentition for tooth eruption guidance and correction of myofunctional habits.<sup>4</sup>

The T4A is designed for permanent dentition. It has higher sides in the canine region to align erupting canines and the distal ends are longer to accommodate the second molars.<sup>4</sup>

The Braces Series™ is for doctors putting on brackets, who want to correct poor myofunctional habits and stop the irritation that brackets frequently cause to the soft tissues.<sup>4</sup>

The Lip Trainer™ is designed to be used in combination with other appliances to improve lip seal, strengthen lip



Fig. 2: Trainer system

muscles, and stretch the lower lip muscles to reduce their over-activity on swallowing.<sup>4</sup>

Myobrace are removable and preformed in various series appliances. They consist of a single block that contacts both arches, and it is built on a head-to-head incisal relation. The purpose of its structural elements is to actively redirect the language and the perioral musculature, correct breathing, and align the anterior teeth. The device was introduced in 2004.

### COMPONENTS OF A MYOBRACE<sup>1</sup> (Fig. 3)

- *Guides for teeth*: To promote their correct alignment. The guides are narrower anteriorly and wider posteriorly, since they correspond to the sizes of the incisal edges and occlusal surfaces of the teeth. The upper and lower channels are separated by 2 mm of the thermoplastic material.
- *Labial and buccal shields*: To prevent the interposition of lips and cheeks, and impart a slight force on the front misaligned teeth.
- *Tongue tag*: Positioned at the retro-incisive papilla, acting as a proprioceptive stimulus to the tip of the tongue, and as a myofunctional trainer to correct the tongue posture.
- *Tongue guard*: To prevent the tongue thrust and interposition, forcing it in its natural position, stimulating the nasal breathing and discouraging bad habits.
- *Lip bumper*: Discourages hyperactivity of the mentalis muscle, relaxing it.

The only structural difference between the myobrace when compared to the other Trainer System appliances is an internal additional hard nylon element, called Inner-Core or Dynamicore.

*There are certain measures of the myobrace*: The choice of the appropriate measure is made measuring the distance between the distal portion of the upper right lateral incisor and the left one, with a special ruler, regardless of any crowding or diastema. The measure is based on the mesial distal dimensions of the upper incisors, and not on their position. In cases where there is a severe crowding or spacing, and it is difficult to make measurements with a ruler, they can be measured individually and then added

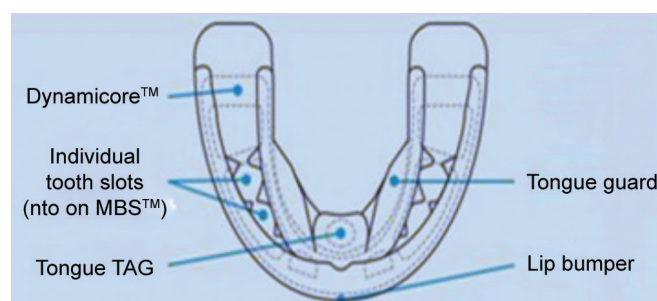


Fig. 3: Structural features of myobrace: dynamicore, tongue tag and guard, lip bumper, tooth slots

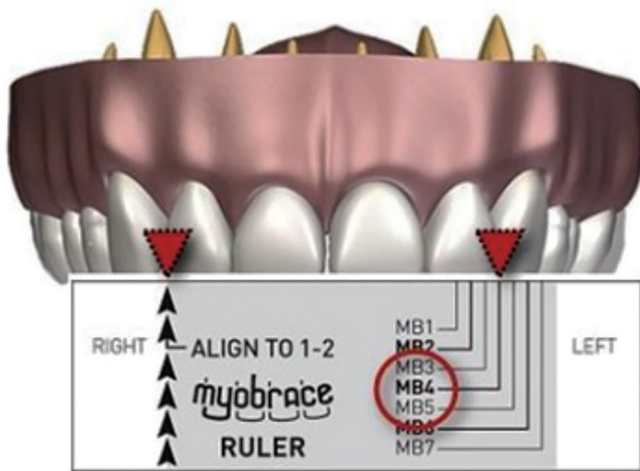


Fig. 4: Choice of the appropriate measure of the myobrace

together, to get the total size of the upper four incisors. This distance is finally confronted with a specific table to choose the correct size of the device (Fig. 4). The measure number is printed on the distal end of the left side of the device. Each measure is characterized by a different color of the inner core, which makes the instant identification easier. If the choice falls between two different sizes, it is preferable to choose the largest one. Once chosen and the device is placed in the patient's mouth, the upper canines, even if they are not yet erupted, must be within their slots, so that the dental midline coincides with the appliance's midline.<sup>5</sup>

The optimum age to give the myobrace appliance is during the eruptive and growth changes stage in the late mixed dentition phase. The longer the permanent dentition is in place, the less effective the myobrace appliance will be. However, factors such as compliance, degree of myofunctional correction, and malocclusion all have an influence. The application of the myobrace will always improve the dental alignment and treat myofunctional habits at any stage of development. Therefore, individual assessment is very much necessary, just as in all orthodontic treatments.

## CLASSIFICATION<sup>6</sup>

Myobrace for Juniors™

Myobrace for Kids™

Myobrace for Teens™

Myobrace for Adults.

Myobrace Interceptive Class III™, which offers treatment solutions for more specific cases displaying class III malocclusion.

Myobrace for Arch Development™, which provides treatment solutions for cases that require increased arch development in combination with MRC's appliances.

## Myobrace for Juniors™

Myobrace for Juniors™ is a three-stage appliance system designed specifically to correct poor oral habits while treating upper and lower jaw development problems. It is most effective in primary dentition as early as 3 years of age.

## Myobrace for Kids™

Myobrace for Kids™ is a three-stage appliance system designed specifically to correct poor oral habits while treating upper and lower jaw development problems. It is most effective after the child's permanent front teeth have come through and before all the permanent teeth have erupted and is available in three sizes.<sup>6</sup>

## Myobrace for Teens™

Myobrace for Teens™ is a four-stage appliance system designed for habit correction, arch development, and tooth alignment. It is most effective when the permanent teeth have come through and is designed to guide the erupting teeth into their natural position.

## Myobrace for Adults™

Myobrace for Adults™ is a three-stage appliance system suitable for permanent dentition. This appliance series incorporates many of MRC's proven appliance design principles, including features that correct poor oral habits, while applying light forces to align the teeth.

## Specialty Appliances (Figs 5 to 7)

The Farrell Bent Wire System™ (BWS) is a light wire appliance developed in response to the need for additional arch development in combination with MRC's



Fig. 5: Bent wire system appliance



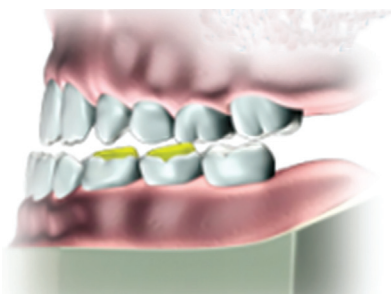


Fig. 6: Myolay

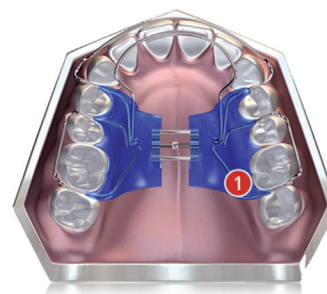


Fig. 7: Biobloc

appliances. The BWS is particularly effective in gaining anterior arch expansion when used in conjunction with MRC's popular Trainer and Myobrace Systems.<sup>7</sup>

Myolay™ is a composite buildup technique used to assist in arch development and jaw alignment in combination with the Myobrace System. The Myolay System involves building up of the four lower deciduous molars by 2 to 4 mm with a composite to assist in arch development, class II and III corrections, as well as cross-bite correction.<sup>8</sup>

The Biobloc is an adjustable appliance constructed of a hard acrylic and arch wire that provides controlled arch expansion through the use of an adjustable center screw. A severely narrow arch form requires the arch expansion to create more room for the tongue and to allow all of MRC's appliances to work more efficiently.<sup>8</sup>

### Interceptive Class III™

The Myobrace Interceptive Class III™ is a three-stage appliance system designed specifically to correct poor oral habits while limiting the excessive lower jaw development problems commonly associated with patients who have class III malocclusion. It is most effective before a child's permanent teeth are coming through and is available in three sizes.<sup>9</sup>

### Permanent Dentition Class III

Often the opportunity for early treatment of class III malocclusion is missed in the growing phase and it persists into the permanent dentition as well. At that particular time, the myobrace appliance system to correct class III malocclusion is used.<sup>9</sup>

### CONCLUSION

Increase demand from parents for not undergoing traditional orthodontic treatment has generated the momentum toward the use of myobrace appliances. The Myobrace System™ caters to the increasing public insistence on noninvasive, earlier, and more stable treatments by addressing the causes inhibiting a child's natural facial development as soon as they become evident.<sup>10</sup> Rather than relying on extractions to create extra spaces for the teeth, applying

forces to the teeth to be in alignment, or performing surgery to reshape the jaws, The Myobrace Appliance System involves wearing of a series of removable appliances for an hour each day and while sleeping, in conjunction with a range of myobrace activities best described as physiotherapy for the growing face. This appliance system offers a new and fresh approach to address the public demand for modern preorthodontic treatment options. There are Myobrace Certified Providers™ program initiated to help enable practitioners to confidently offer myofunctional preorthodontic treatment options. This program helps the members to treat a wide variety of patients while cutting down the chairside time but at the same time is beneficial to the patient as well as the practitioner.

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