PROCEDURES MANUAL

MYOBRACE™ MANUAL

This manual describes more detailed information of the MYOBRACE™ System additional to the brochure.

Enquire about courses in your area on MYOFUNCTIONAL / ORTHODONTIC TREATMENT

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MYOFUNCTIONAL RESEARCH CO.
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Defining the MYOBRACE™

Positioners have been around for nearly as many years as orthodontics. They are commonly used as retainers, and more recently used as complete orthodontic treatment. Functional appliances also have a long history, with similar attempts to be the complete answer. They all have advantages and disadvantages. See the MYOBRACE™ video on **www.myobrace.com** for more information.

In 1991 the TRAINER System™ was first introduced with the Pre-Orthodontic TRAINER™ (T4K™). This expanded to the T4B™ and the T4A™ for the use with brackets and the permanent dentition. Effectively the system was designed as habit correction with some tooth aligning properties thrown in. It could not be defined as a positioner or a functional appliance, although sharing some features with both its ancestors.

In 2004, the MYOBRACE™ was designed the other way around. It takes the positioner concept, improves it for better compliance and tooth alignment, and then adds back what has been learned about habit correction from the TRAINER System™ used for more than a decade.

A Newer Concept in Orthodontics

Many say, including Graber, that orthodontics has for too long relied upon the fixed brackets as the complete solution.

After introduction by Angle 100 years ago, through the technological age, multi-banded appliances still have many drawbacks. One of the major ones is relapse, which has plagued the Orthodontic profession.

The principal of moving teeth is well known. Light forces with tip and torque, plus correct arch form to gain arch length. Extractions do not really help stability as Little has shown, but are introduced for the convenience of gaining space.

When orthodontic principles are examined at a basic level, it is clear there are alternative methods of achieving ideal dental alignment other than direct bonded multi bracket systems. The simultaneous correction of soft tissue habits like tongue thrust and incorrect swallowing patterns has received renewed attention more recently. MRC has focussed on this area insisting it is the key to improved stability.

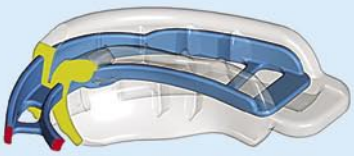
Design Objectives

The dental and orthodontic professions are already familiar with prefabricated positioners with individual tooth slots, made to align or retain the teeth. These removable appliances, such as positioners, aligners, pre-moulded appliances, and the various copies available have demonstrated varying effectiveness in recent years.

All these traditional appliances have a limiting factor: their construction from one base material. An overly hard appliance provides a good level of rigidity, but lacks comfort for the patient. A softer material provides flexibility and comfort for the patient, but lacks sufficient force for arch development and dental alignment.

MYOBRACE™ APPLIANCE

MYOBRACE™ APPLIANCE



DYNAMICORE™ CUT-AWAY

TRADITIONAL ORTHODONTICS

Back to Basics with the MYOBRACE™

You can look at the MYOBRACE™ from first principals. The inner core is the "wire" and the outer core engages the teeth "the bracket". If the teeth are badly aligned you start with a lighter wire (MBS™ blue) and some arch expansions (DynamiCore™). The Class I pre-moulded jaw position (like any positioner or functional appliance) gives Class II or Class III correction if started early. (Early for Class III meaning between 6-8yrs). The added bonus is the Myofunctional features of the tongue tag and lip bumper to correct the habits causing the malocclusion. These have been incorporated from the TRAINER System™. Research on the TRAINER System™ now shows it relocates the mandible (Usumez, 2004) and it does expand arches, corrects class II and improves alignment in the majority of cases (Ramirez-Yañez, 2005a; Quadrelli, 2002). All these characteristics have been incorporated into the MYOBRACE™ system.

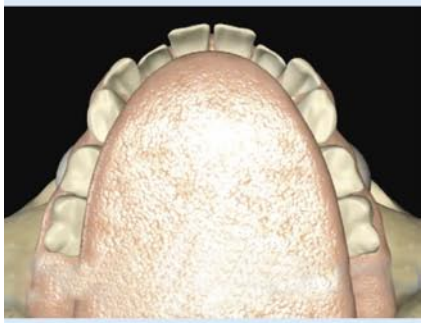
Many practitioners still do not accept the large role of the tongue and lips in causing malocclusion. If this is the case it is suggested you look at the website **www.myoresearch.com** and go to soft tissue dysfunction to learn more about this major cause of orthodontic abnormalities. The information now is overwhelming (Ramirez-Yañez, 2005b).

The brackets and wire are fixed 24hrs a day to the teeth.
How can something of intermittent wear 2 hours daily, plus night time have a significant influence on moving the teeth and treat soft tissue dysfunction?

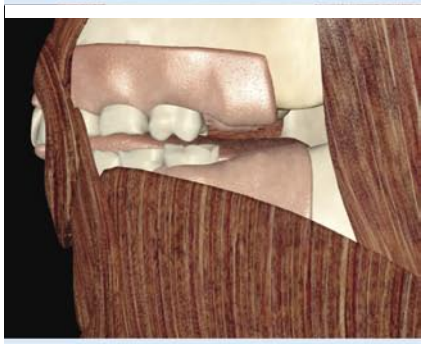
This is a big concern for dentists. Scientific literature has demonstrated that the patient needs to wear the functional appliance for a brief time during day time to influence the muscles in such a way that the neuromuscular masticatory pattern is improved (Sander, 2001). Furthermore, three hours of continuous stimulation is enough to move the tooth in the periodontium and to produce alveolar bone remodeling (Roberts, 1997). Therefore, the intermittent use (2 hours daytime associated to overnight usage) recommended for the Trainer™, including the MYOBRACE™, deliver enough stimulus to move teeth and correct soft tissue dysfunction.

The key issue over other systems is twofold. We know positioners and removable appliances can move teeth with this intermittent wear if used daily, on a regular basis. The MYOBRACE™ has better compliance because of its dual molding technology and once removed, the tongue and the lip can continue alignment after treatment due to the unique myofunctional training characteristics of the MYOBRACE™. See the adjacent chart for tongue and lip forces. Also constantly reverting to a no appliance in the mouth situation, naturally develops a good, functional occlusion, and tooth position tends to follow lip and tongue function, uniquely setting teeth and muscle forces in harmony. Fixed appliances tend to force the teeth into a predetermined position, with the consequence that removal of the braces results in the teeth moving back to their original mal-position. This has been shown by many research papers over the last 50 years.

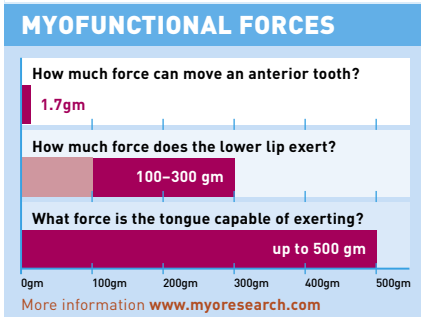
NORMAL TONGUE POSRITION



LOWERED TONGUE POSITION



TONGUE THRUST SWALLOW



FORCES REQUIRED TO MOVE TEETH
VS
SOFT TISSUE FORCES

Indications for Use

There are guide lines that follow for a patient selection but the criteria can be quite variable. Therefore it is important not to totally eliminate any patient from the potential of using the MYOBRACE™ System.

Any malocclusion at any age can be treated with the MYOBRACE™, provided the appliance fits adequately into the mouth. There is a contra-indication for using the MYOBRACE™ in more severe malocclusions merely because the appliance does not adequately fit into the mouth and therefore does not have control in improving the dental alignment.

For this reason the MYOBRACE™ Starter (MBS™) has been developed which has a softer inner core for better adaptation to widely varying dental and arch forms. For more information on the MBS™, see page 7 of this manual.

Optimum age

The optimum indication for use is the late mixed dentition stage between the ages of 8 and 12 years. As with any positioner type appliance, eruption of the permanent dentition is an ideal time to change arch form and anterior dental alignment when there are more dynamics in the dentition. The MYOBRACE™ is less effective once the permanent dentition has erupted, but is still effective provided there is compensation in better patient motivation and compliance. In the initial stages it is better to select patients in this optimum window of late mixed dentition stage as well as patients who are motivated to obtain a result.

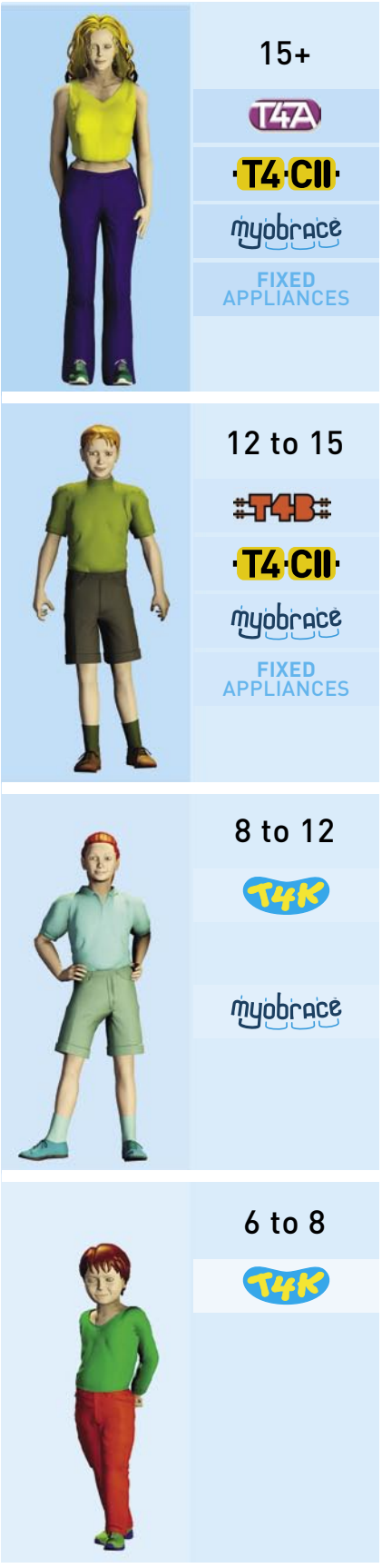
Motivated Patient and Parent

Probably the most significant indication for use is the motivation of the patient and the parent. If there is not regular consistent use of the system, there will be little or no result. Conversely, with persistent constant use virtually any malocclusion will be improved by using the MYOBRACE™ System.

Therefore there are two basic essentials.

1. Patient must be motivated.
2. The MYOBRACE™ must fit reasonably into the mouth even with some difficulty, at the first visit.

If there is a severe open bite, severe Class II or Class III, the most suitable treatment may be the TRAINER System™ which has greater flexibility combined with other orthodontic treatment.
(Like BWS™, Q helix, Transverse appliances).



Patient Selection

Due to the nature of removable appliances, patient compliance is essential. Therefore it is important to only select motivated patients and parents. If motivation is a problem, it may be better to use conventional fixed brackets instead of the MYOBRACE™.

Age Selection

The MYOBRACE™ can be used at any age – mixed or permanent dentition. The optimum age is during the eruptive and growth changes in the late mixed dentition. The longer the permanent dentition is in place, the less effective the MYOBRACE™ 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 dental alignment and treat myofunctional habits at any stage of development. Therefore individual assessment is necessary, just as in all orthodontic treatment.

Selecting the appropriate size

The appropriate MYOBRACE™ is selected by measuring across the four upper incisors. The measurement is based on the width of the upper anteriors. If there is spacing or crowding the dimension does not alter as the reference is the teeth, not their positioning.

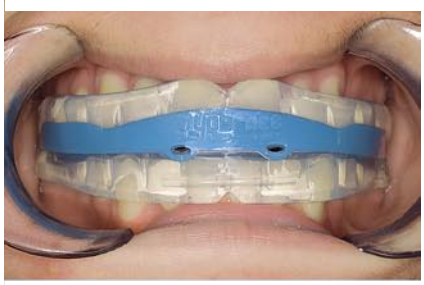
The appliance is available in six individual sizes, which cover the majority of everyday cases. When in place, check the upper canine position corresponds to the MYOBRACE™ tooth slots. Wearing the MYOBRACE™ for a minimum of two hours each day, plus overnight is all that is required to provide adequate arch expansion and positive forces to align the anterior dentition.

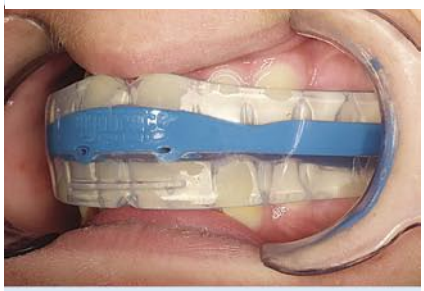
Post-initial fitting

After the appliance is fitted, it is important to establish routine reviews to assist in assuring that treatment is proceeding correctly. Expect to see soft tissue and dental changes in the first 2-3 months. Review the patient every 1-2 months. Take models and photos at these visits to record and measure progress.

Case Selection

The MYOBRACE™ brochure, CD and website describe some minimal requirements as a starting point, but they are just guidelines i.e. mild to moderate malocclusion with 4-6mm of crowding, and less that 5mm of overjet in Class II cases. This is a parameter for starting cases. Keep in mind the MYOBRACE™ is working at a myofunctional level as well as an orthodontic level. This means that you are going to get some improvement in the more severe malocclusions, certainly in the arch form just by the correction of myofunctional habits.





CHECK THAT THE CENTRELINE OF THE MYOBRACE™ IS ALIGNED AT THE DENTAL CENTRELINE, AND THE CANINE SPACE IN THE MYOBRACE™ ALIGNS WITH THE CANINE POSITION EVEN IF UNERUPTED. IF NOT, SELECT A DIFFERENT SIZE.

Starting Cases

The easiest cases to start with are mild upper and lower anterior crowding with moderately narrow arch form. In addition to this the MYOBRACE™ brochure shows the ideal adaptation to post arch development using either the Bent Wire System (BWS), Quad-helix or conventional transverse appliances to maintain the arch form while correcting the dental alignment after all the teeth have been moved. As it has been shown with the TRAINER System™ and the MYOBRACE™ brochure, this can greatly assist in the Class II correction.

Possible Replacement for Brackets

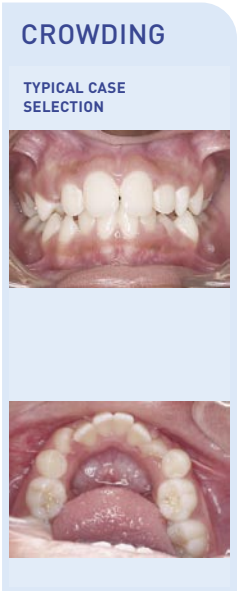
In many of these cases particularly if the MYOBRACE™ is used in the optimum mixed dentition stage the necessity for braces is eliminated. However the opportunity to use limited amount of fixed appliances for ultimate fine tuning of the dentition is not lost in this timing.

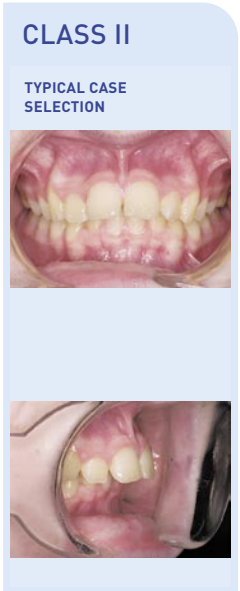
For instance, if patient compliance is not as good as is expected when the permanent dentition fully erupts into position, fixed appliances can still be used partially and for limited amounts of time to align the anteriors. Class II correction and arch development would have been obtained along with dental alignment which minimize fixed appliance treatment. This is particularly useful if the patient also has poor oral hygiene, which is a contra-indication for prolonged fixed appliance treatment.

Pre-treatment with the T4K™ or T4A™

A note on the design of the MYOBRACE™. Like most positioners and unlike the TRAINER System™ it has a relatively thicker base (because of the inner core) which, with some malocclusions, can make it difficult for the patient to get their lips together. This is one of the contra- indications of using the appliance and those familiar with the TRAINER™ system will readily recognize the pre-treatment with the pre-orthodontic TRAINER™ can greatly assist in these cases to prepare the case to be suitable for the MYOBRACE™ System.

Typical cases





Using the MYOBRACE™ after orthodontic appliance systems

The MYOBRACE™ comes with a built in arch expander – DynamiCore™. So unlike the TRAINER System™ is not suitable for use with arch expansion appliances like QuadHelix and Bent Wire System™. But is great after these if you need to maintain substantial expansion or need to maintain it while correcting the anterior alignment. With the built in DynamiCore™ some posterior cross bite corrections can be obtained with good compliance, however often if you have a severe posterior cross bite it is preferable to correct this first with some form of arch development. Check out the Bent Wire System™ (BWS™) on our website to see exactly how this is used in conjunction with the TRAINER System™.

Effectively, therefore the MYOBRACE™ is an arch expander as well as a positioner, but if considerable amounts of arch development are needed, more powerful transverse arch expanders are recommended to be used first.

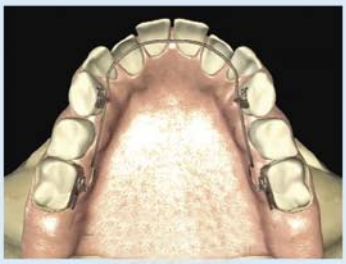
Introducing the MYOBRACE™ Starter – MBS™

One limitation of the MYOBRACE™ with its tooth slots and hard inner core, is that does not always fit the patient well at the start when the malocclusion is more severe. This is normal and a common problem with regular positioner appliances.

For this application MRC has introduced the MYOBRACE™ Starter – MBS™ for use prior to the multi sized MYOBRACE™.

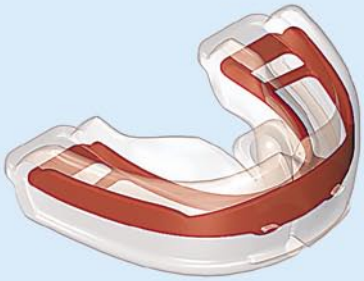
The MBS™ has no individual tooth slots, comes with a softer and more flexible DynamiCore™, or, no inner core for maximum adaptability. The grading of the hardness of the DynamiCore™ is blue as the softer inner and the red is harder. The MBS™ can be used with these more severe cases for the first 6-12 months. Its role is to improve arch form, dental alignment, and myofunctional habits to a point where the malocclusion is less severe, then the appropriate size of the MYOBRACE™ with tooth slot size can used for continued treatment.

The introduction of the MBS™ has greatly assists having a one single stand alone system to treat more cases without brackets.

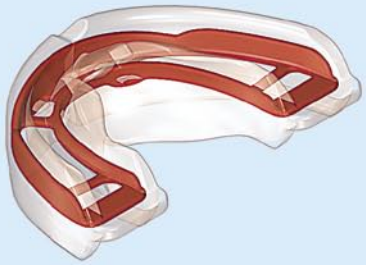


BEFORE TREATMENT WITH BWS™

AFTER TREATMENT WITH BWS™



MYOBRACE™ STARTER APPLIANCE: FRONT



MYOBRACE™ STARTER APPLIANCE: REAR

Follow up Visits

The MYOBRACE™ is a complete orthodontic system and therefore the usual records for orthodontic treatment procedures are required, the same as for fixed appliances. Take models, photos and X-Rays for your records and do a patient presentation on the second visit. Once the MYOBRACE™ is the preferred treatment the patient is started with clear instructions on the timing and the importance of maximum compliance. At each follow up visit at one – two months interval it is important first to confirm that compliance has been good. Our experience with diaries and other notational devices is that the children either do not bring them in with them or they do not fill them out at all. Therefore it is important to put the question to the parents whether the patient has fallen into a routine of regular use of the MYOBRACE™. Check the MYOBRACE™ for signs of wear. It there is no sign of wear, maybe compliance needs to be improved.

Observe for progress which is looking at soft tissue changes, improved situation with mouth open posture, improved dental alignment and Class II correction if appropriate. It is advisable to at least measure changes in arch width in the inter molar and inter canine area. This can also be confirmed by periodical taking of models. Progress photos are important to motivate the patient on the progress and reinforce continued compliance.

Check that the MYOBRACE™ is being worn correctly each time by asking the patient to put it in their mouth. This will identify also whether compliance is good as the MYOBRACE™ should be very easily accepted by the soft tissue.

Reinforce that falling out at night is OK and is an indication that more perseverance is needed. Inform the patient that this is a system that may require replacement of the MYOBRACE™ as it gets worn out. Six months is an average life span of the silicone. If they chew heavily on it, particularly at night, wear will be much increased and splitting will occur. This is no problem as you just issue and charge for another MYOBRACE™.

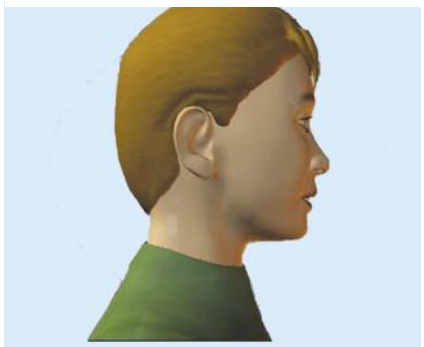
If you start with a MYOBRACE™ Starter™ (MBS™), it is very easy to implement a new MYOBRACE™ every 4-6 months for each progressive stage. Work through the MBS™ blue, red then onto the appropriate MYOBRACE™ size. This can be an indication for the appropriate time to charge additional fees and it is quite reasonable to expect multiple appliances and equally multiple fees for this treatment. However, this is not always necessary.

Look for soft tissue changes as well as improved dental alignment and arch form. See panel on right for further details.

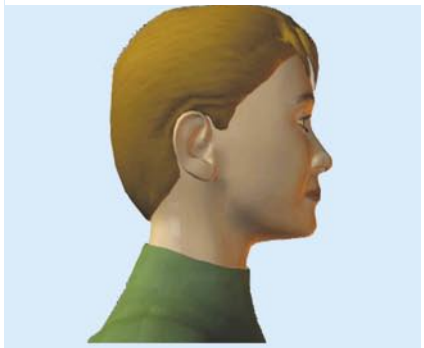
Note that with correct wear, the MYOBRACE™ will wear and split with patients after some months. This is an indication that compliance is good. Inform the parent there will be continuing charges for additional appliances.

FOLLOW UP VISITS

CHECK FOR IMPROVED LIP POSTURE



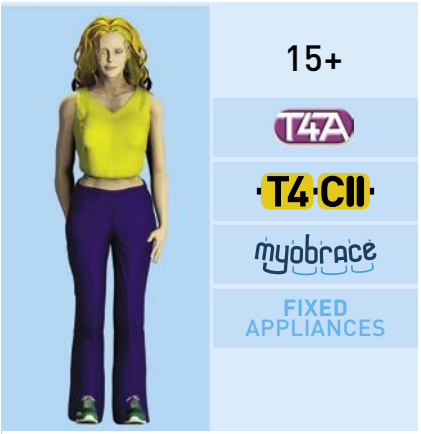
AFTER 3–4 MONTHS LIPS SHOULD CLOSE TOGETHER AT REST



GOOD LIP POSTURE SHOULD DEVELOP AFTER 6-12 MONTHS OF REGULAR USE

Wider Application – Permanent Dentition – Adult cases

The MYOBRACE™ can be used of course on adults as can be the T4A™ in the TRAINER System™. The effectiveness is more variable but it tends to be the case that adults are more reliable in the use and therefore compensate the fact that the teeth do not move as readily and the bone is less adaptable. These cases are often just as effective as with the younger patients because the motivation is much higher. As has been said earlier, motivation is a key factor and is also a variable, high motivation and high use can compensate for other difficulties with the treatment. Also wider application have given you some basic parameters and with experience as you go outside this guidelines and find equal success once the patient selection is based on experience. Adult cases can be less predictable in outcome.



Patient Fees

Practitioners always have a dilemma on how to bill for this treatment with pre-fabricated appliances. Generally the patient does not have this same problem as orthodontic treatment and alternative treatment without brackets are all expensive. The MYOBRACE™ is very cost effective to patients and a fee of 50%-70% of the regular orthodontic fixed appliance fee is appropriate. It is important to understand that the patient perception is what the appliance system can do and it certainly can do every bit plus more than conventional fixed braces.

Ensure your charges are adequate and explained to the parent prior to commencement of treatment. factor in models, photographs throughout the treatment as well as the posssibility of replacement of the MYOBRACE™ if splitting and wear occurs.

A fee of 50%-70% of the regular orthodontic fixed appliance fee is appropriate.

Relapse

There are many stories that the patient's parents can tell you of relapse after orthodontic treatment. The fact that the MYOBRACE™ treats one of the major causes of relapse, which is the untreated myofunctional habits, gives you a great potential to exceed the rather poor long term results of fixed brackets in terms of requiring long term retention. It is important to discuss the fees situation with the patient prior to the treatment so that the fees are clear and the purpose of the treatment is also well explained. However with good compliance you rarely have a dissatisfied patient and parent.
The majority of the cases as you would have experienced with the TRAINER System™ the patient and parent have their expectations exceeded by the treatment because there are no brackets and the treatment is very unintrusive. They prefer a more natural approach which is less invasive and less painful. This is the MYOBRACE™ treatment and the fee often becomes irrelevant.

The MYOBRACE™ is an ideal treatment when relapse has occurred after fixed appliance treatment. Avoid rebands with the MYOBRACE™

What is the difference between the MYOBRACE™ System and the Trainer Systems™

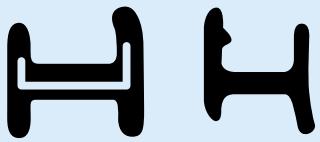
Both Systems come from the MRC's advanced technology in intra oral design. The systems are similar, but complimentary rather than the MYOBRACE™ being a newer replacement of the TRAINER System™.

If we look at the TRAINER System™ as a primary habit correction before, during and after orthodontic treatment these appliances will fit also just about all malocclusions, although treatment in the early mixed dentition is best. Facial development is a primary goal of the pre-orthodontic TRAINER™. One of the other major differences, particularly in dealing with arch development and the Bent Wire System™ (BWS™), is the TRAINER™ is used as myofunctional habit correction in conjunction with pretty much any form of orthodontic treatment.

A Complete System

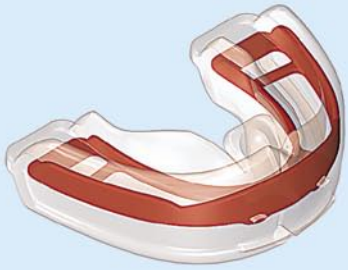
The MYOBRACE™ System on the other hand is pretty much a stand alone system. It certainly requires better case selection. It will not fit all malocclusions. It does the arch development for you but, if you need considerable arch expansion, use the T4K™ or Bent Wire System™ or transverse expansion first. The MYOBRACE™ is directed much more at dental alignment and is much more an alternative to conventional fixed appliances. Just as the fixed appliances where if you need to gain considerable arch length or you need arch expansion you would use some phase 1 treatment prior to fitting the brackets. The MYOBRACE™ is similar in its function. Its DynamiCore™ is designed to do a level of arch development and certainly a considerable dental alignment but not to extreme. You may find that with severe mis-alignment the MYOBRACE™ does not fit into the mouth. This is the criteria. Of course the dual molding and the construction of the MYOBRACE™ makes it more expensive compared with single-moulded TRAINER™.

In the future more information cases, questions and answers and lecture updates will be available on the MYOBRACE™ web site. Get started and share you knowledge at **myobrace.com**.

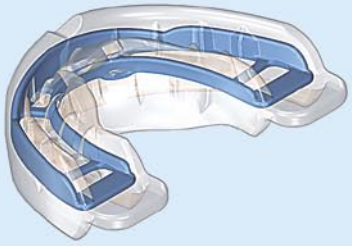


MYOBRACE & T4K® CROSS SECTIONS

T4K® APPLIANCE



MYOBRACE™ STARTER APPLIANCE



MYOBRACE™ APPLIANCE

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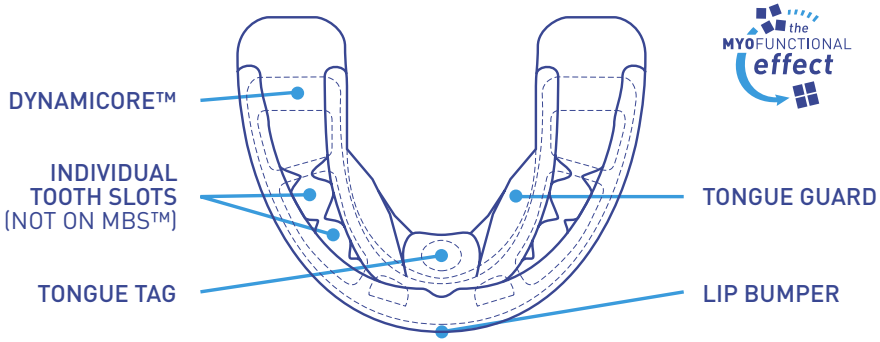
The MYOBRACE™ is a new development in orthodontic treatment based on the time proven principles of the positioner concept.

Incorporating the very latest CAD and dual moulding technology pioneered by Myofunctional Research Co, the MYOBRACE™ features high-tech design characteristics to align the anterior dentition and the mandible into Class I.

This intra-oral appliance features individually-sized tooth slots and DynamiCore™, the active inner core enabling controlled arch development.

The MYOBRACE™ is suitable for most children currently in the mixed or permanent dentition with mild to moderate malocclusions.

APPLIANCE FEATURES



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