

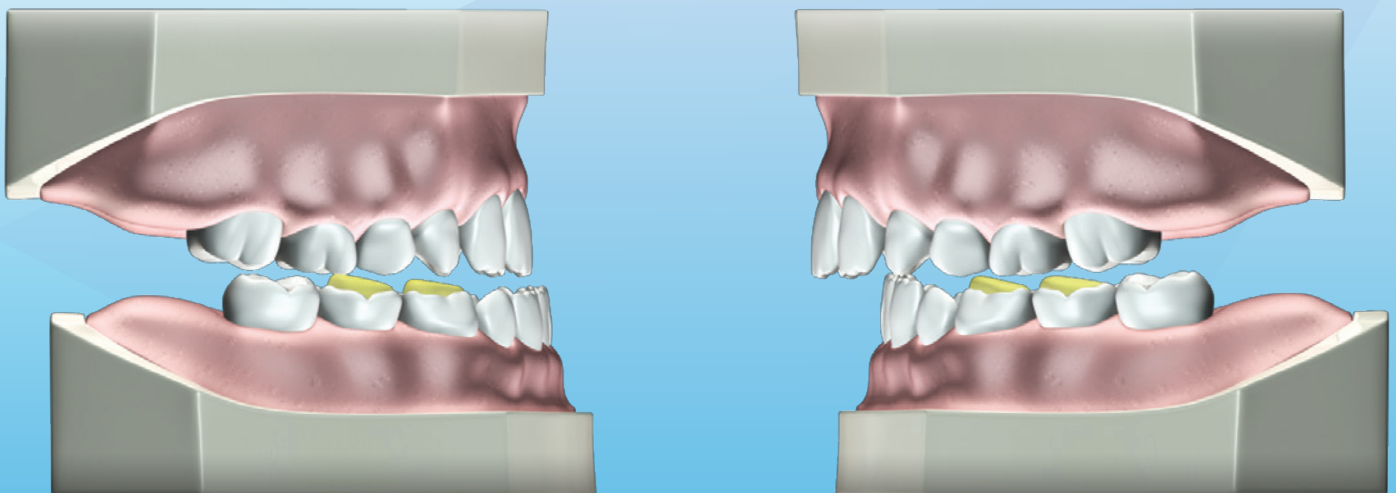


**MYOFUNCTIONAL
RESEARCH CO.**

INNOVATIVE DENTAL APPLIANCE
TECHNOLOGY AND EDUCATION

myolayTM

MANUAL



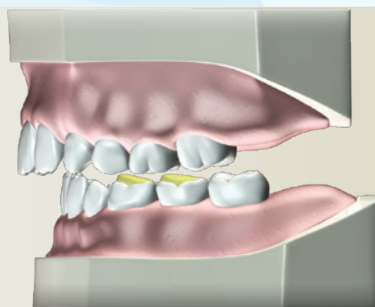
REQUIREMENTS AND APPLICATION OVERVIEW

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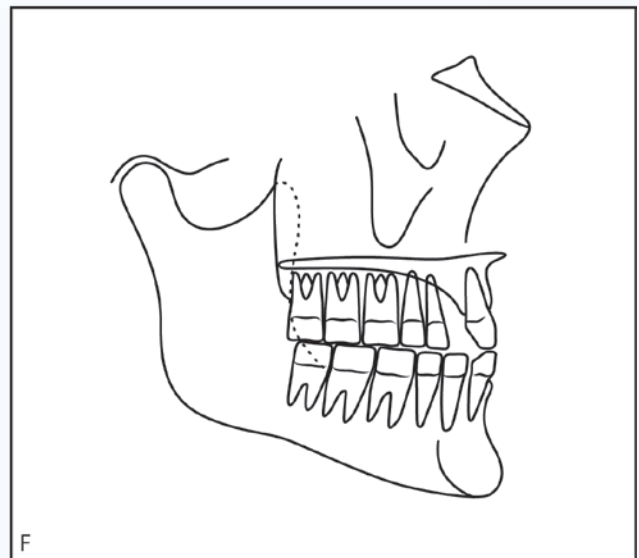
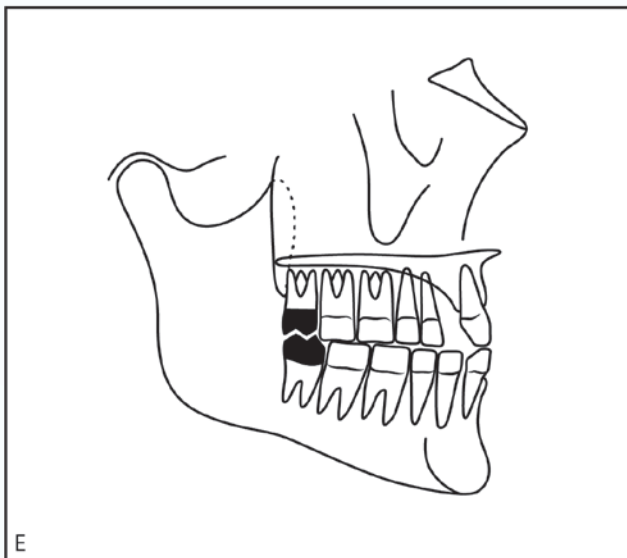
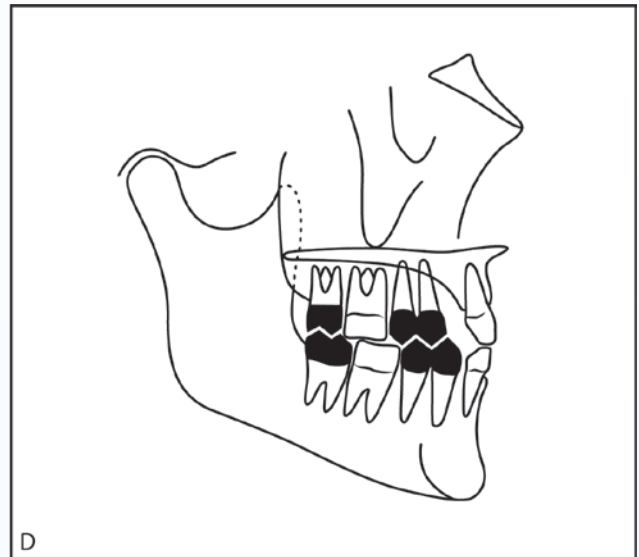
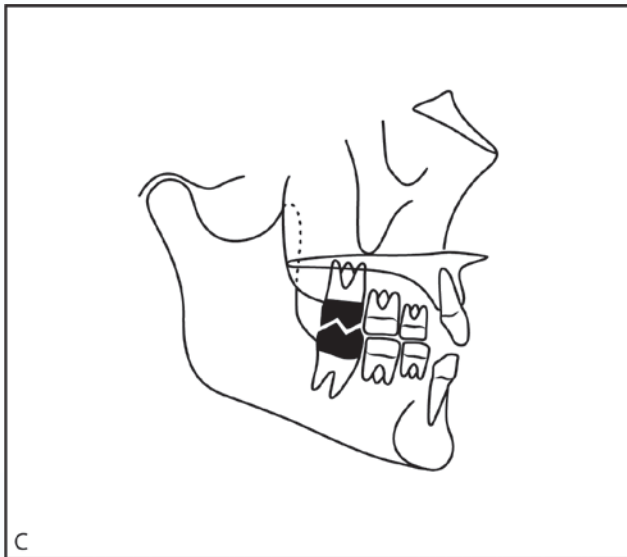


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INTRODUCTION

Growth and Development

During an individual's early years, a key factor in the growth and development of the mid and lower face is the relationship of the upper and lower teeth and jaws to one another (otherwise known as the occlusion). Where the patient's soft tissues 'drive' growth, the proper union of the upper and lower teeth sets the maxilla and mandible in the correct position and 'guide' development in the appropriate direction.



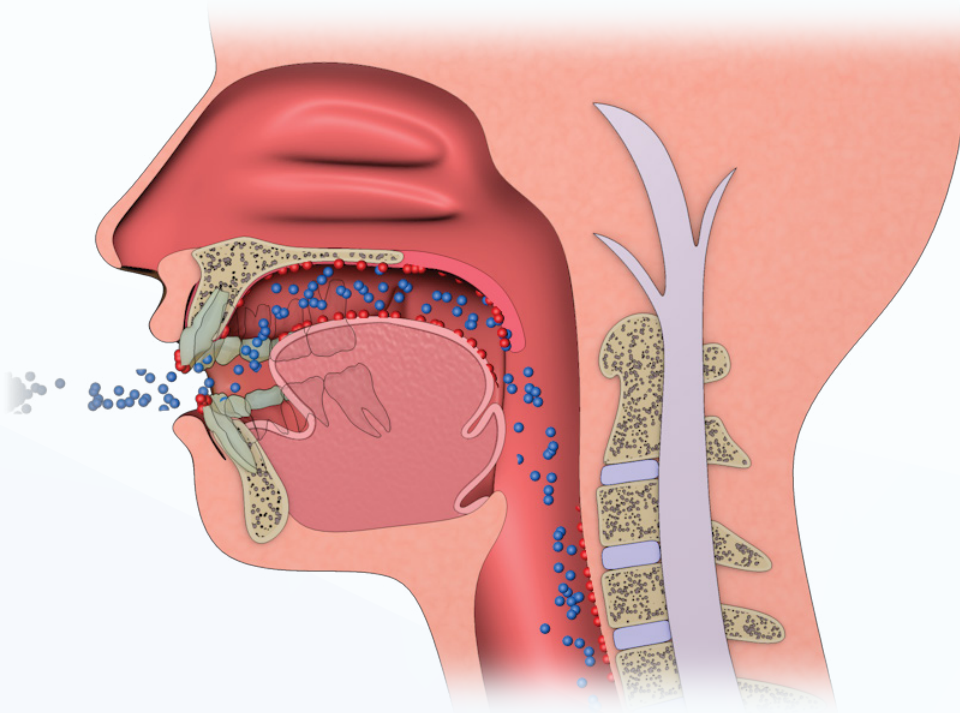
During growth, the proper occlusion guides the patient's jaw development.

Van Der Linden, Frans P. G. M. (1986). *Facial Growth and Facial Orthopedics*. Quintessence Publishing Co.

As a result, when there is a disharmony in the occlusion, clinicians have attempted to re-establish the correct occlusal relationship to promote healthy craniofacial development. The establishment of correct occlusion in an effort to normalise craniofacial development was popularised by practitioners such as Professor Pedro Planas, who pioneered the Planas Direct Tracks (PDTs). PDTs are buildups placed on the upper and lower teeth that correct the occlusal relationship.

Dr Chris Farrell pioneered the use of prefabricated myofunctional appliances that focus on the correction of breathing and myofunctional habits in early intervention orthodontics. His philosophy was centred around the correction of poor habits to normalise craniofacial development from an early age. He saw techniques that attempt to correct the occlusion (like PDTs) as a valuable adjunct to this philosophy.

The crucial shortfall of PDTs was that they relied on a union between the upper and lower jaw, but no efforts were made to correct mouth breathing. In other words, how can you expect the upper and lower jaw to meet correctly with buildups when the child has their mouth wide open from mouth breathing?



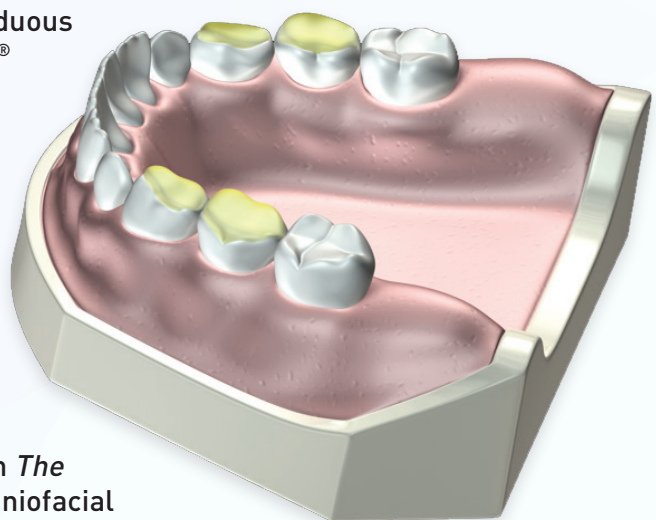
Mouth breathing must be addressed in order to correct the occlusal relationship effectively.

This may explain why PDTs are sometimes unpredictable. To address this problem, Dr Farrell altered the technique to suit *The Myobrace® System* and created *Myolay™* (as shown below).

Myolay™ is a quick and simple technique which involves composite buildups placed only on the lower deciduous molars and must be combined with the *Myobrace®* appliance protocol.

While the *Myobrace®* appliance is worn for one to two hours while awake and overnight while asleep, the *Myolay™* is fixed on the occlusal surface of the teeth, allowing the correct occlusion to be established 24 hours a day. This is especially important during the periods where the *Myobrace®* is not being used to prevent continual relapse to the incorrect occlusal relationship.

In this way, the patient's function is corrected with *The Myobrace® System* and as this function drives craniofacial development, the *Myolay™* ensures that the correct occlusion is established, which guides the patient's growth.



Role in Myobrace® Treatment

The *Myobrace*® appliances should be worn every day for one to two hours while awake and overnight while asleep. This means that in a 24-hour time period, the patient spends more time not using an appliance than they do wearing one. Why is this significant? Because the patterns that the patient habitually exhibits are in effect for a longer period and therefore have a greater impact on craniofacial development.

If the patient has a disharmonious occlusal relationship, when the *Myobrace*® is not being used, the patient will simply relapse back into their original occlusion, making the correction of jaw development challenging, if not impossible. The most striking example of this is in Class III or anterior crossbite cases where the upper jaw, which should grow downward and forward, is trapped behind the protruded lower jaw, preventing its correct growth and eventually establishing a prognathic lower jaw.



Therefore, in certain cases, *Myobrace*® practitioners must use the *Myolay*™ technique to reposition the lower jaw into the correct occlusion and, when combined with the habit correction of the *Myobrace*® appliances, results in proper craniofacial growth.



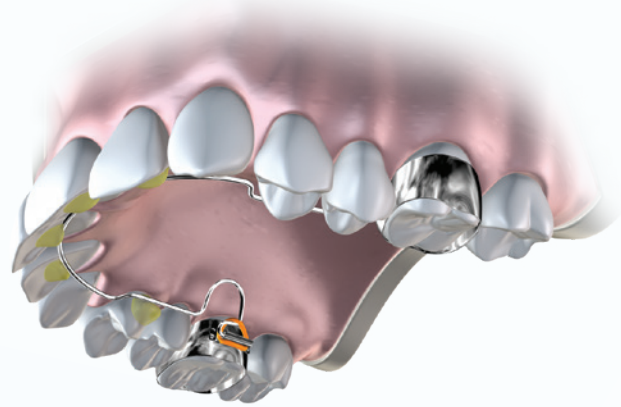
CASE SELECTION

Requirements Before Application

Myolay™ is a very safe, simple and easy technique to master. It only involves placing composite resin on the occlusal surface of the first and second molars. The composite resin is shaped purposefully to achieve a desired clinical outcome. As such, there are very minimal contraindications to using this technique.

Age

The *Myolay™* technique is not used in every case, but it is common in *Myobrace®* treatment. Since the *Myolay™* approach relies on periods of high growth, it is primarily used in the primary and early mixed dentition (most commonly below the age of eight). In some instances it may be used in older patients, but this is rare and these cases more regularly require *The Farrell Bent Wire System™ (BWS)*.



Compliance

Nasal breathing and proper function of the oral muscles is the key driver of craniofacial growth and development, so it is vital that the patient is compliant with *Myobrace®* treatment and therefore attaining the correct habits. Without the correct habits, the occlusion may be in the correct relationship, but the muscles do not function correctly to drive growth.

Another key consideration is that, since it is a composite buildup technique, the *Myolay™* by its nature opens the bite after application.



Although the recommendation is to avoid creating more than 2mm of an open bite after its placement, there is always a risk of the tongue finding an opening and worsening the open bite. As such, there will be times where the *Myolay™* can do more harm than good if the patient's function is not controlled. This is another reason why *Myobrace®* compliance is essential when applying the *Myolay™* technique.

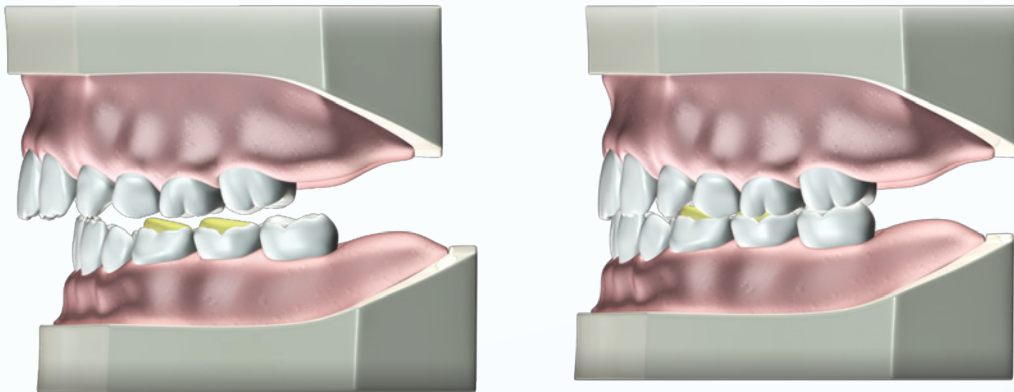
Oral Hygiene

As with any time you are applying composite to the teeth, it is important that the patient has good oral hygiene to prevent the risk of creating new cavities or other oral diseases.

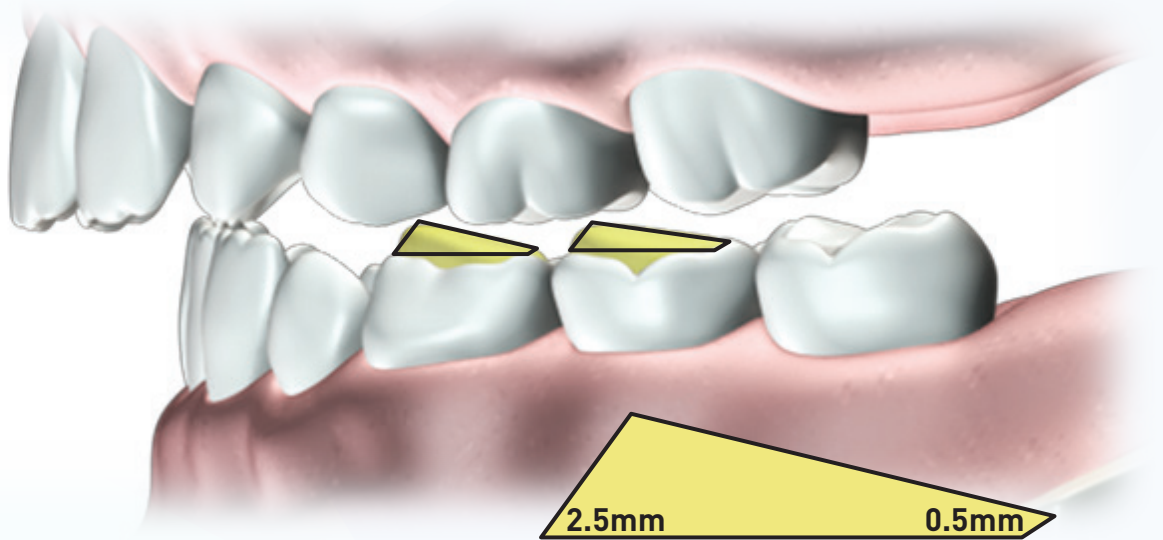
Clinical Indications

Class II

The first type of malocclusion suitable for *Myolay*[™] is a Class II malocclusion. This is generally where the lower jaw sits too far back or distally compared to the upper jaw and, as such, presents an occlusal disharmony. *Myolay*[™] can be used to promote the forward placement of the lower jaw.



As always, the composite is placed on the deciduous lower molars and, in the case of a Class II, are placed in an 'incline plane' fashion so that they slope **upwards** anteriorly (as shown below). The highest point of the incline plane should be 2-3mm and the lower point should be 0-1mm in thickness.



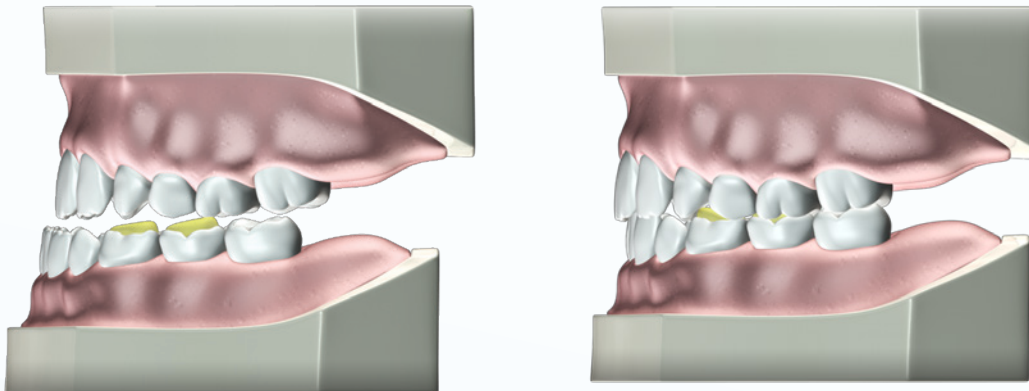
Myobrace[®] Selection

The *Myobrace*[®] typically used with these patients is the *Myobrace*[®] for Kids (K) series, but other appliances (such as the J or T series) may be used, though this is not common.

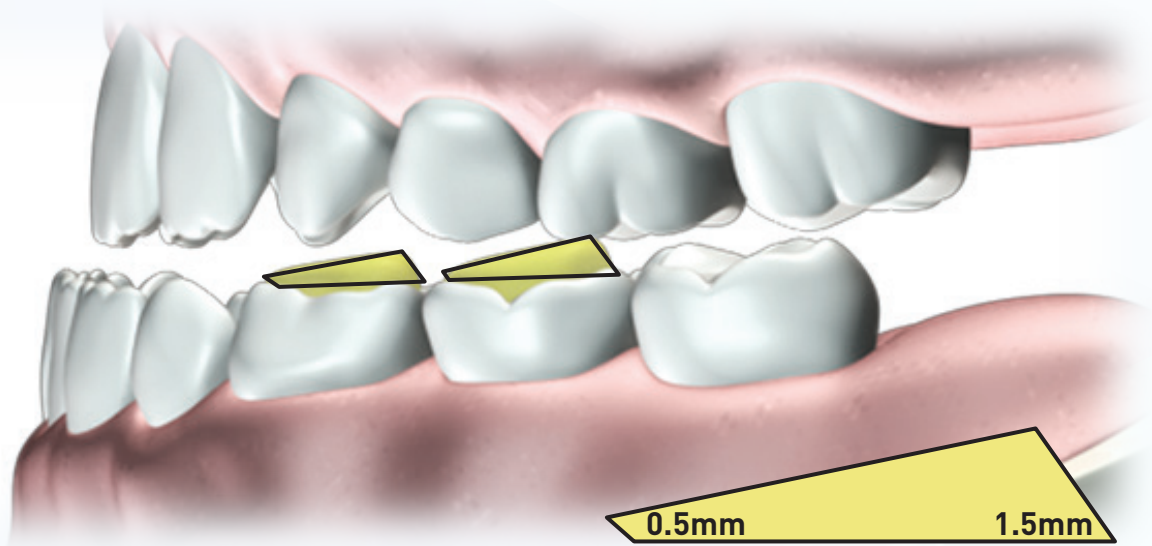


Class III

The second type of malocclusion that the technique is used for is a Class III malocclusion. This is the most common indication and most, if not all, patients treated with *The Myobrace® System* for Class III will require *Myolay™*. Class III patients are generally characterised by a deficient upper jaw trapped behind a forwardly placed lower jaw. *Myolay™* is used to open the bite, 'unlock' the occlusion, and allow forward development of the upper jaw.



As always, the composite is placed on the deciduous lower molars and, in the case of a Class III, are placed in an 'incline plane' fashion so that they slope **downwards** anteriorly (as shown below). The highest point of the incline plane should be 1-2mm and the lower point should be 0-1mm in thickness.



Myobrace® Selection

The *Myobrace®* typically used with these patients is the *Myobrace® i-3®* or *P-3®* series. Since Class III patients have weak lowered tongues, the use of a *Myotalea® TLJ* to strengthen the tongue is also required.

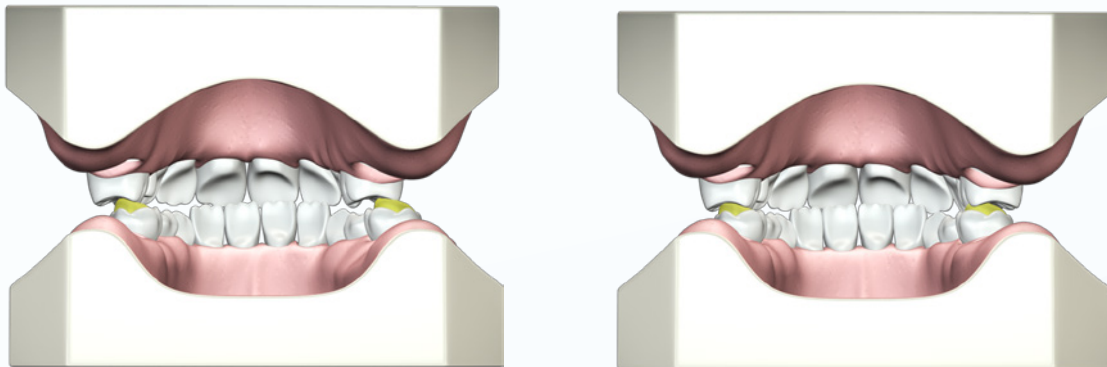


Posterior Crossbite or Midline Deviation

The third instance the *Myolay*[™] technique is used is to correct a posterior crossbite and/or to re-align the dental midlines. Correction of posterior crossbites with *Myolay*[™] is generally only done in the primary or early mixed dentition, as in older patients *The Farrell Bent Wire System*[™] (BWS) will suffice. However, for midline corrections the *Myolay*[™] can be used at any age, but as the patient ages it becomes more difficult to gain a long-term correction.



Whether the aim is to correct a posterior crossbite or a midline deviation, the objective is to use the *Myolay*[™] to align the upper and lower jaws, unlock the bite, and allow the tongue to develop the arches and bring them back into a symmetrical relationship.



The shape of the *Myolay*[™] is the same for both types of cases. As always, the composite is placed on the deciduous lower molars and are placed in an 'incline plane' fashion (similar to the Class II and III cases shown previously), however, this time the incline plane slopes down **medially or buccally** as opposed to anteriorly or posteriorly (as shown below). The highest point of the incline plane should be 3-4mm and the lower point should be 0-1mm in thickness.

The lower jaw will move towards the side where the highest point of the *Myolay*[™] has been shaped. In the example below, the highest point is on the left, so the lower jaw will therefore move to the left.



Myobrace[®] Selection

Depending on the age of the patient, the *Myobrace*[®] typically used is either the J, K or T series. If the patient has a Class III malocclusion, then typically the *i-3*[®] series is used.

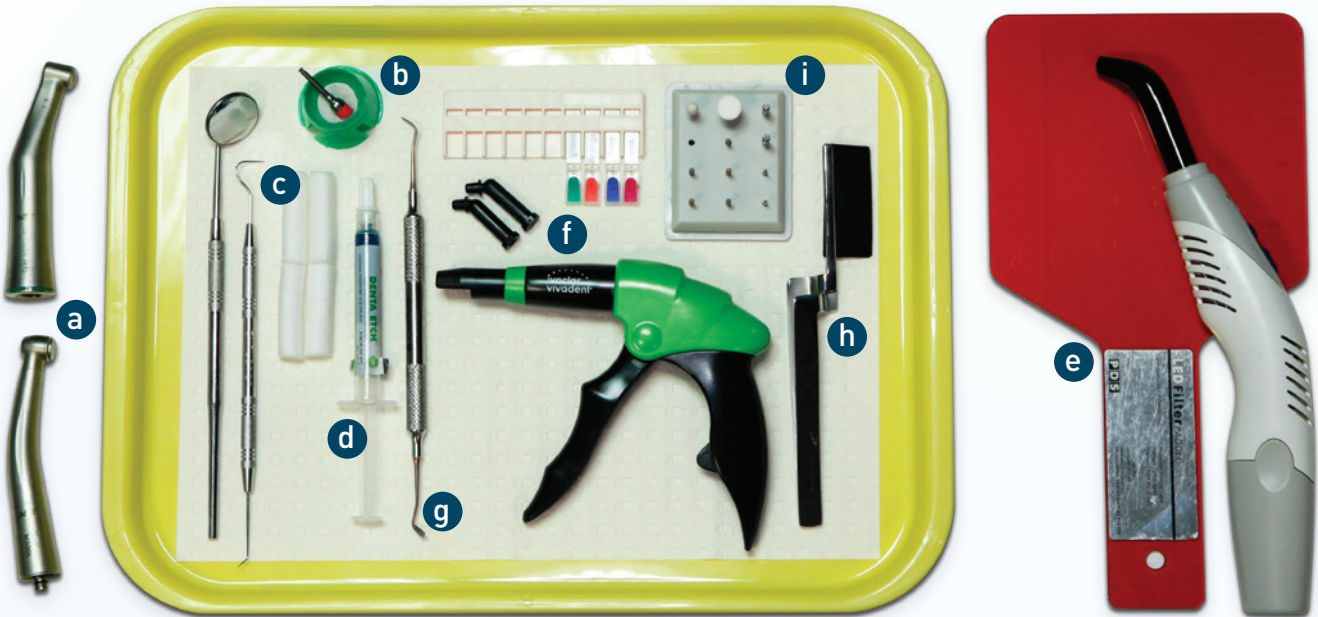


APPLICATION

The application of *Myolay*[™] is exactly the same process for each type of clinical indication. The only variation being the shape of the composite. Therefore, you must follow the same steps below for each clinical indication, except for the composite shaping, which will be relevant to the malocclusion present.

The process is as follows:

- 1.) A clinical indication (and no contraindications) for *Myolay*[™] is identified.
- 2.) Prepare the following materials:



- a.) High-speed and slow-speed handpiece; b.) Pumice brush and pumice;
c.) Mirror, probe and cotton rolls; d.) Phosphoric acid etch; e.) Curing light and shield;
f.) Composite resin (coloured preferred but not mandatory) and composite bonding system;
g.) Flat plastic for shaping; h.) Articulating paper; i.) Polishing burs.

- 3.) Pumice the occlusal surface of the deciduous lower molars (D and E teeth).
- 4.) Apply phosphoric acid etch to the occlusal surface of the D and E teeth as per the manufacturer's instructions.
- 5.) Rinse and dry thoroughly before placing cotton rolls for isolation.
- 6.) Ensure the occlusal surface of the D and E teeth are completely dry and apply the composite bonding material as per the manufacturer's instructions and cure using the curing light.
- 7.) Apply the composite onto the occlusal surface of the D and E teeth.
- 8.) Shape the composite depending on the clinical indication:
 - a.) For Class II, shape to incline anteriorly;
 - b.) For Class III, shape to decline anteriorly;
 - c.) For midline/posterior crossbite correction, shape to incline either medially or buccally, depending on which way you want the jaw to move.
- 9.) Cure using the curing light.
- 10.) Check the bite using articulating paper to ensure an even bite on both sides.
- 11.) Polish to balance the bite and finish the composite, making sure that you ask the patient to bite their teeth together to ensure that the occlusion is in the desired position.

FREQUENTLY ASKED QUESTIONS (FAQs)

What type of composite should I use?

At MRC clinics, we choose to use coloured composite as children find it fun and, in the rare event that we need to remove the composite, it is easily differentiated from enamel. However, if you do not have coloured composite, any composite resin material is fine.

How do I remove the *Myolay*[™] once I'm done?

Myolay[™] is not typically removed and is instead left on the teeth until the deciduous molars exfoliate naturally. On the rare occasion that you need to remove the *Myolay*[™] for any reason, they are simply removed using a high-speed handpiece and polishing burs.

There is an open bite after placing the *Myolay*[™], is this OK?

Since *Myolay*[™] are buildups, they will naturally increase the vertical dimension and open the bite. We don't recommend exceeding a 2-3mm open bite between the upper and lower incisors, but what is far more important is tongue function. If *Myobrace*[®] compliance is poor, the patient is mouth breathing, and the tongue function is sub-optimal, the open bite may persist and may get worse in some cases as the tongue pushes between the opened bite. However, when the tongue is resting in the roof of the mouth and *Myobrace*[®] compliance is good, the patient's development progresses normally, and the open bite closes soon after (usually no longer than three months).

Which *Myobrace*[®] should my patient wear?

The *Myobrace*[®] series selected will depend on the patient's stage of dental development and malocclusion. It is no different to the *Myobrace*[®] that the patient would have worn had they not had the *Myolay*[™]. Typically, the second stage appliances are used with *Myolay*[™] as they are most effective when nasal breathing has been established (and the patient has moved on from the first stage appliance). In some instances, *Myolay*[™] is used to improve the establishment of nasal breathing or occlusion to transition from the first to the second stage appliances faster. Typically, we would ensure the patient has worn their first stage appliance for at least one to two months with good compliance before considering *Myolay*[™] regardless as a degree of tongue control is required to prevent the malocclusion from worsening.

What if the patient's bite has undesirably closed a few weeks after placing *Myolay*[™]?

It is normal for the patient to wear down their *Myolay*[™] buildups in the weeks after you have placed them. If you would like to open the bite again further, simply re-apply composite material on top of the existing *Myolay*[™], ensuring you take all of the usual precautions.

Can you use *Myolay*[™] in a patient who is not compliant with their *Myobrace*[®]?

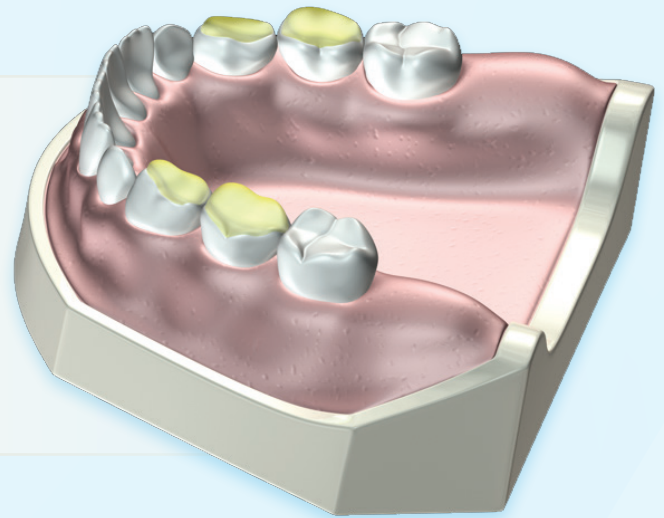
Using *Myolay*[™] in non-compliant patients is not recommended. Patients with poor compliance often have poor function, which can be worsened when the bite is opened with the *Myolay*[™]. Remember that *Myolay*[™] establishes the correct occlusion so that the function can drive growth correctly. Without the correct driver, the occlusion can deteriorate unpredictably. With good *Myobrace*[®] compliance, function can then assist the patient's development.

Should *Myolay*[™] be used in children over the age of eight with large overjets?

The use of *Myolay*[™] in patients above the age of eight is rarely indicated. In the case of large overjets in the late mixed dentition that impede *Myobrace*[®] compliance, *Myolay*[™] can risk excessive rotation of the mandible and vertical growth. This is because there is no guarantee that the patient's function is correct without the ability to wear the *Myobrace*[®]. In these cases, the use of other functional appliances can be considered to reduce the overjet before transitioning back to *Myobrace*[®] wear once the patient is able to. The preferred appliance is the Biobloc stage 3 (BB3), but this can be very technique sensitive. Other functional appliances can be considered but may restrict upper arch development through anchorage.

Class II, Class III and Crossbite Correction Made Easy!

Myolay™ is a composite build up technique, used in the primary and early mixed dentition, which is combined with the *Myobrace®* appliances to establish the correct occlusion and help guide the patient's development.



Start using *MRC's* appliance systems in three simple steps!



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2 Contact an *MRC* representative

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