

What every dentist should know when referring patients for orthodontic treatment

By Chris Farrell, BDS



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More than 100 years ago and before Edward Angle, dentists realised they could move teeth into a more aesthetic position by applying various mechanical devices to the teeth. This in turn caused apposition and deposition of bone in areas where forces were increased or decreased. Teeth could be moved into a more aesthetic position and so the orthodontic profession was born.

Angle clearly stated his view that it was unethical to extract teeth for orthodontic purposes and proved that, with his complex fixed appliances, he was able to expand the arches and align the teeth. The problem at this stage was that a lot of these cases (possibly most of them) relapsed.

So Tweed, who was Angle’s student, suggested that the extraction of teeth was the only way to get stability. In the 1950’s extraction orthodontics became the normal practice after the Australian Orthodontist Percy Raymond Begg developed the first straight wire appliance, which required less wire bending skills than previous methods (Figure 1).



Figure 1. Begg bracket.

Today, orthodontists revere self-ligating brackets as the key to non-extraction orthodontics. Angle would be amused if he were around today. So has the stability of orthodontics changed? No. The orthodontic profession has accepted that to expect case stability using fixed appliances without fitting permanent retainers (Figure 2) is both impractical and unrealistic.

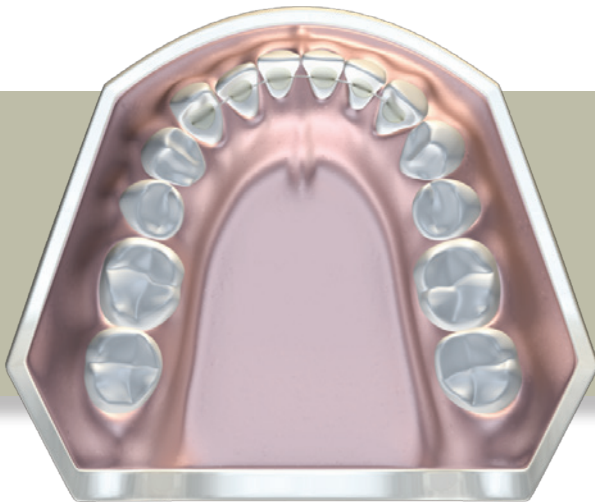


Figure 2. Bonded retainer.

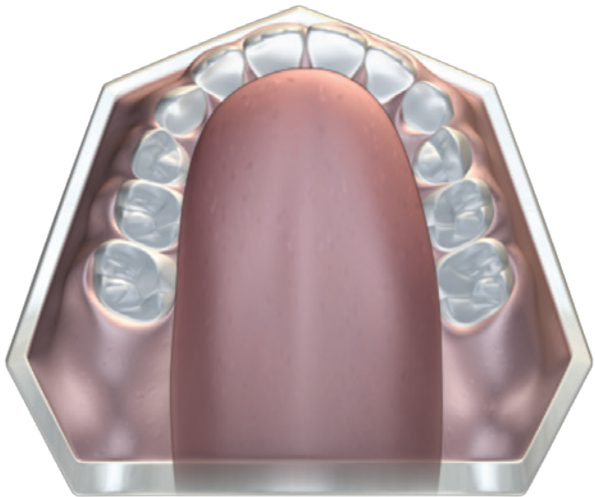


Figure 3. The tongue supports upper-arch development.

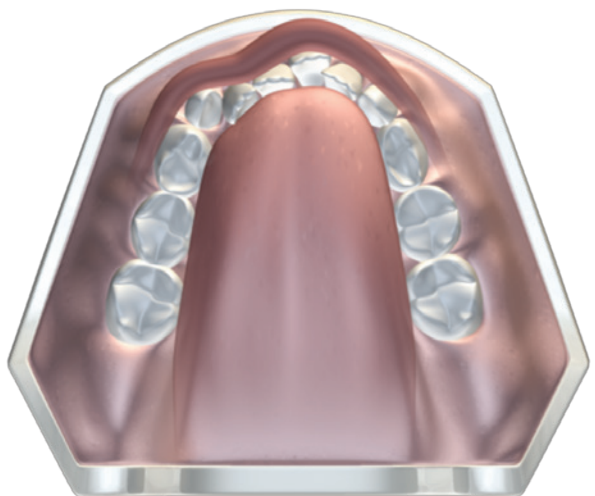


Figure 4. Lower-crowding caused by poor myofunctional habits.

“Myofunctional orthodontics put forward that the cause of malocclusion was muscle dysfunction... The correction of these dysfunctional habits not only corrects the malocclusion, it also has the potential to improve facial growth...”

Progress in orthodontic stability is achieved by advances in flowable composite, rather than advances in orthodontic technique. The Australian Society of Orthodontists (ASO) website states “Teeth may have a tendency to change their positions after treatment. The long term, faithful wearing of retainers should reduce this tendency”, an example of the widespread acceptance that stability is not possible with tooth-centred orthodontics.¹

Myofunctional therapy

Understanding how the oral muscles and the tongue influence the jaws and dental arches predates Angle by a long way. The history of myofunctional therapy dates back to the 15th century in Italy. In 1906, American Orthodontist Alfred Rodgers experimented with facial muscle exercises and in 1918 wrote a paper titled “Living Orthodontic Appliances”, in which he cited that muscle function alone would correct malocclusion. In 1907, renowned Orthodontist Edward H. Angle’s text book “Malocclusion of the Teeth” detailed the effects of oral habits on occlusion.

Angle stated that in his view, EVERY malocclusion has a myofunctional cause. Myofunctional therapy became the popular “adjunct to orthodontics” in the 1960’s and 1970’s when Daniel Garliner created the Myofunctional Institute in Florida. Garliner trained thousands of myofunctional therapists and wrote multiple books on the subject. The new etiology of malocclusion was confirmed by rapid success in treating malocclusion with greater stability. Unfortunately, this success was not evident in 100% of cases. Arguably, the ensuing decades saw myofunctional therapy diminish in popularity due to the then time consuming treatment being seen as only an optional little adjunct for cases where the patient exhibited tongue thrusting. Tooth-centred orthodontics with direct bonded brackets and super-elastic wires no longer warranted the “tongue thrust therapist” in all but the occasional cases.

Myofunctional orthodontics

Myofunctional orthodontics put forward that the cause of malocclusion was muscle dysfunction. From an early age, mouth breathing, thumb sucking, tongue thrusting or swallowing incorrectly can be observed in most children. All will have a developing malocclusion. The correction of these dysfunctional habits not only corrects the malocclusion (if treated early enough), it also has the potential to improve facial growth.



Figures 5 and 6. Before and after images of a case treated using myofunctional orthodontic techniques. Braces were not used, no teeth were extracted and a permanent retainer is not required. Excellent case stability was achieved.

The problem with treating myofunctional habits early is that the compliant patient will no longer need braces. This is one of the biggest dilemmas facing an orthodontist today. Correct the causes early and the market for braces can be drastically decreased. However, treating children earlier at their optimal growth stage (between 5-8 years of age) using myofunctional orthodontic techniques can make orthodontic treatment later easier and more stable. Once a practitioner can see the causes of a child's malocclusion, it is possible to serve the growing demand from parents who do not want to delay treatment for their children.

We also now know that tooth-centred orthodontic treatment can only achieve short-term results unless fixed or removable retainers are used in the long-term.¹ Parents must be made aware of this if they are to make an informed decision for their children. Should the problems be treated now, or should the patient wait?

Myofunctional orthodontics is not just about moving teeth. The first objective of myofunctional orthodontics is to have enough space for the tongue to sit in the maxilla. The second objective is to have the patient breathing through their nose with their lips together.

If the patient is not breathing through their nose, then correct arch development and correct dental alignment cannot be achieved.

For patients unwilling or unable to correct their own dysfunctional habits (chronic mouth breathers, for example), correct dental alignment and arch development is only possible if the patient accepts wire and glue for life. Occasionally

patients do accept this and so sometimes retainers are fitted under the direction of the patient or parent. This occurs for only a minority of cases.

Once you can diagnose the causes of the malocclusion, you are capable of resolving the malocclusion, rather than just treating its symptoms.

Treating the causes of the malocclusion, rather than just relying on mechanical forces to align teeth, has great benefits for both patients and parents (Figures 3 and 4).

Myofunctional orthodontics produces healthier patients who are able to grow without the detrimental habits that limit facial growth. Patients who stop mouth breathing are healthier and get less allergies and infections because of breathing through their nose. Fixing incorrect swallowing patterns and improving poor nutrition allows correct downward and forward facial growth and development.

Case after case using myofunctional orthodontics produces stable maxillary arch development and resolves lower anterior crowding with little mechanical effort. No braces are needed and for the majority, no permanent retainers are required (Figure 5 and 6).

Reference

1. <http://www.aso.org.au/Docs/Orthodontics/Risks.htm>

If you'd like to learn more, Myofunctional Research Co. (MRC) offers Myofunctional Orthodontic training. Visit myoresearch.com for more information.

About the author

Dr Chris Farrell graduated from Sydney University in 1971 with a comprehensive knowledge of traditional orthodontics using the BEGG technique. Through clinical experience, he took an interest in TMJ/TMD disorder and after further research, Dr Farrell discovered that the etiology of malocclusion and TMJ Disorder was myofunctional; contradicting the established views of his profession. Dr Farrell founded Myofunctional Research Co. (MRC) in 1989 and has become the leading designer of intraoral appliances for orthodontics, TMJ disorder and sports mouthguards.