

# Habit Correction in the Growing Child

by Dr Chris Farrell BDS

The impact of tongue thrust, incorrect swallowing and mouth breathing on dental and facial development has been well documented over the past 100 years. Angle in his 1907 edition noted “The influence of the lips is an interesting study and almost every malocclusion has some manifestation of it.”<sup>1</sup>

Many others after Angle, particularly Graber<sup>2</sup> have observed the impact of these soft tissue influences in perpetuating malocclusion. However there is still little attention paid to this in orthodontic treatment planning.

Graber<sup>3</sup> and others<sup>4</sup> in this century have observed the need for a more biological approach to orthodontic treatment in view of the published limitations of the mechanical approach of the past<sup>5</sup>. More recently Otopalik in the AJODO demonstrated the pessimism of the stability of orthodontic and surgical correction. “My observation over the years is that change is the only constant factor and to expect long term stability is not possible.... Muscle factors, tongue position and function all play a great part and can lead to eventual change or recurrence of the original problems”<sup>6</sup>.

## Treating Soft Tissue Dysfunction

Myofunctional therapy has been advocated since the 1960's as the treatment for tongue thrust and other habits. It has proven to be time consuming with unpredictable results after many hours of therapy. Mechanical treatment like tongue cribs have shown limited effectiveness. The American Journal of Orthodontics however does indicate there is certainly some merit in early Myofunctional therapy in the mixed dentition prior to orthodontic treatment, “although no long term studies support its benefits”<sup>6</sup> Most practitioners say it is all too difficult, not significant and go for long or permanent retention periods.



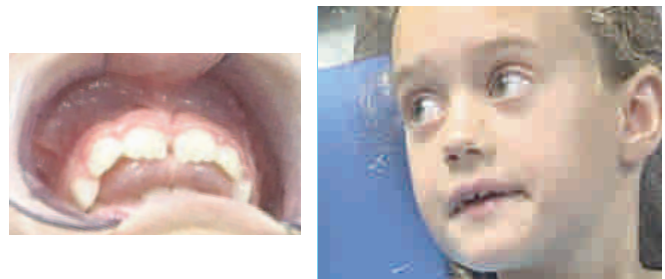
**Anterior Open Bite caused by tongue thrust**

Dysfunction of the soft tissues does have a significant impact on dental and craniofacial development, although there are still those who wish to adhere genetics having the only influence on growth. The presence of a tongue thrust swallow in Class II and open bite case alone would justify a closer look at the impact of treatment of these habits. Also mouth breathers have been shown to be more prone to poor craniofacial growth and malocclusion<sup>7</sup>.

Functional appliances or growth modification techniques are not directed at the treatment of these habits. The use of these techniques is not the subject of this discussion, as they alone evoke great controversy in the profession.

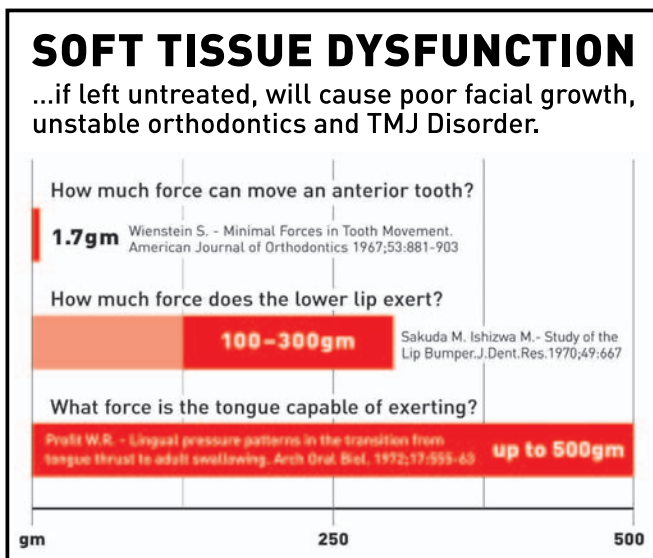
Poor habits that influence the craniofacial and dental development and their treatment have been for too long ignored. Incorrect facial growth, overwhelming demand for orthodontic treatment and its instability<sup>8</sup> would suggest there is a need for a simple myofunctional treatment appliance in a modern form to cost effectively treat these habits before during and after orthodontic treatment. In some cases this treatment could eliminate the need for fixed orthodontic treatment. In all cases it could have the potential to decrease the complexity (extractions) and increase the stability of the orthodontic correction.

## Early Treatment?



**Child with developing malocclusion**

The practice of applying orthodontic treatment once the permanent dentition has erupted with the use of multi banded techniques has become the predominant approach to treatment of malocclusion by Orthodontists worldwide. The American Journal of Orthodontics and Dentofacial Orthopedics, January 2002 edition, devoted the entire edition compiling the information on the “limitations” of early orthodontic treatment. The current



Graph 1

consensus is the former is the correct approach and is not being debated here. However the same issue did highlight “myofunctional therapy seems to be useful in some situations.”<sup>6</sup> The need for further investigation was noted.

Early myofunctional treatment of these soft tissue influences on malocclusion could bring the favourable results early treatment advocates have always promised but so frequently failed to deliver.

### A need for review.

The assumption that the fixed appliance therapies are “the best we can do” without the need to change is under question. The poor stability of fixed orthodontics with or without extractions has been published time and again. The norm is relapse.<sup>5,8</sup>

Estimates vary with clinical criteria, but possibly 70% or more of our adolescent population now require orthodontic treatment at some time. It would appear orthodontic resources are overburdened under the current system. It is also questionable whether this is the most cost effective solution in the long term based on purely scientific criteria. Can we get a better result by concurrently recognising and treating these aberrant muscular forces that may well be driving the course of the malocclusion long after the fixed orthodontic treatment has finished?

Fixed appliance orthodontics has become an efficient and widespread treatment for malocclusion and is certainly a most cost effective treatment system. Nonetheless there is still the “can we do better” question from governments and the profession. Affordability of orthodontic services is under treat from health systems throughout Europe. The question is, can orthodontic resources be made more available to a wider number of children by using no more (and no less) Orthodontists?

The early treatment of myofunctional



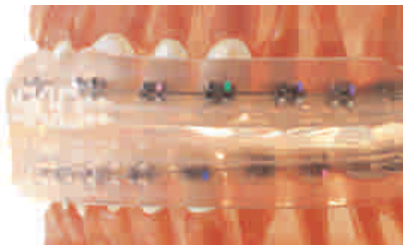
**The Pre-Orthodontic Trainer (T4K)**

habits in the growing child could be a cost effective pre-orthodontic programme to correct soft tissue habits in growing children. This should at least decrease the complexity of protracted open bite cases and possibly improve stability of many other cases.

Can we give the next generation a better treatment at less cost? Let us look at the possibilities based on published research over the past 100 years.

### A simplified approach to treatment of the soft tissues.

The Pre-Orthodontic TRAINER is an appliance system developed by the author more than 12 years ago. The philosophy is not to grow jaws or move teeth. It is primarily an appliance designed to assist in the correction of tongue habits, mode of breathing and lip seal. Favourable dental changes are achieved, but these are more from the soft tissue changes rather than the orthodontic affect of the soft and flexible universal sized appliance. There are other versions to use in conjunction with fixed appliances (TRAINER for BRACES-T4B) and another to be used with fixed retainers (TRAINER for Alignment-T4A).



**The Trainer for Braces (T4B)**

Clearly, from the graph 1, it can be seen that correcting the aberrant forces of the tongue and lips will be beneficial to development of the growing child and for treatment and stability.

### The TRAINER SYSTEM

The essentials of myofunctional therapy are complex but can be focussed on a few basic principles. The first myofunctional exercise is to position the tongue tip correctly at rest and to obtain lip seal. This is well known among those of the Speech Pathology profession, who have advocated for many years the power of adjunctive myofunctional therapy for assisting difficult orthodontic

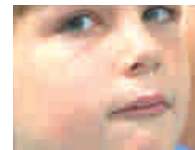
cases.

The TRAINER system merely uses a single size prefabricated appliance to achieve a similar therapy. This removes the need for one to one professional training and tedious exercise programs for the child.

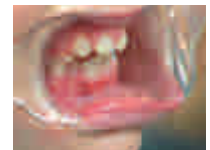
## Before treatment



## Function always = Form



Hyperactive mentalis



Space loss



Tongue thrusting



Open bite

## After 7 months use Pre-Orthodontic TRAINER System

Open bite is closing; arch development is apparent; space loss and dental alignment are improved; the child's facial features are more attractive.

Using The TRAINER Program will make each orthodontic case easier and the results more stable.



Mentalis relaxed



Space regained



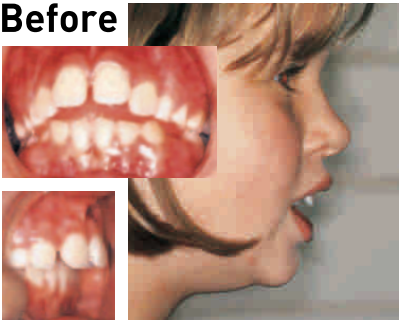
Arch developing and...



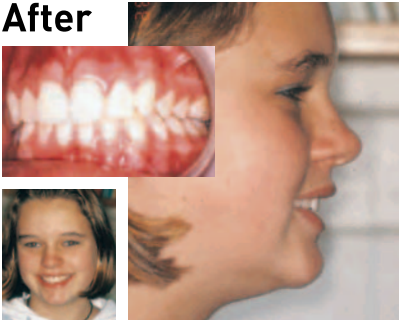
Open bite closing



## Before



## After



Rather than debate the pros and cons of this approach, let us look at how the TRAINER system applied at the mixed dentition stage has improved craniofacial growth, corrected poor habits and dental alignment.

Clearly these selected cases show significant favourable craniofacial and dental changes. This treatment of the soft tissue dysfunction can be implemented before during and after conventional orthodontic treatment. It is low cost and time treatment.

Minimal staff training is required. Can we ignore the potential of this treatment adjunct?

Do we want to improve the craniofacial development of growing children and reduce the requirement for complex orthodontic treatment with extractions and surgery? Correction of the soft tissue dysfunction may hold the key.

Do we also want to decrease the pressure of government's persistent requirement to limit budgets related to orthodontic services?

Is there any means now that may be an appropriate direction to investigate?

The author has studied all the available techniques and approaches for the last 20 years. Presenting lectures to Universities over 4 Continents. Is there benefit to the patient and the community services to consider an option to decrease the overwhelming demand for orthodontics and just maybe improve the rather poor stability of current orthodontic techniques?

The optimum advantage of the TRAINER technique is that it is fundamentally NOT orthodontic. The correction of mouth breathing (Hinz), lip and tongue habits (Angle), and redirecting not growth but muscle forces (Frankel), are the primary objectives of the seemingly un-intrusive, flexible appliance system either for the mixed dentition in

brackets or in the permanent dentition.

These 4 cases demonstrate the potential effectiveness of such an approach. Although selected, the presence of improved craniofacial growth, no need for extractions and excellent stability in each case would encourage further investigation. In addition there are no lab bills, less clinical time and yes, high patient cooperation.

The limitation of patient cooperation is always the argument for not using removable appliances. But one not requiring fabrication, not readily subject to breakages and certainly of low cost can be applied to large numbers of the growing population of which a large percentage will be motivated to comply.

This Myofunctional approach is more modern and less time consuming compared with previous methods. It is used throughout East and West Europe by Orthodontist and General Dental practitioners.

Further articles will examine the changes produced consistently by this myofunctional approach. Also a diagnostic procedure for "soft tissue dysfunction" will be discussed.

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## Combined Arch Development and Myofunctional Habit Correction



Start



6 Months



6 Months No Retention

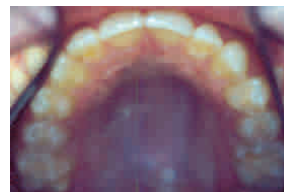
Arch Development Achieved With Trainer (T4B) and Simple Lingual Arch (BWS) Integrated With Lower Fixed Appliance



Start



Bent Wire System (BWS)



12 Months No Retention

Arch Development Achieved With Excelent Stability Using Trainer (T4K) and Simple Lingual Arch (BWS)

## REFERENCES

1. Angle, E.H. Dr. The Treatment of Malocclusion of the Teeth. Ed 7. Chapter 2. Saunders Philadelphia: 1907.
2. Graber T. "The Three M's. Muscles, Malformation and Malocclusion." Am J Ortho Dentofac Orthop. 1963 June 418-450.
3. Graber, T, Vanarsdall, Robert L Jnr, Orthodontics Current Principles and Techniques, Third Edition, St. Louis, Missouri, Mosby Inc. 2000.
4. Turpin D L, Am J Ortho Dentofac Orthop May 2003; 123:487.
5. Otopalik, Brown H, DDS., Am J Ortho Dentofac Orthop. Vol 113 No.6, June 1998.
6. Shapiro, P A, DDS, MSD Seattle, Wash. Am J Ortho Dentofac Orthop. Vol 121 No 6, June 2002.
7. Bresolin, G, DDS, MSD, Shapiro, G, MD and Dassel, S, MD Am J Ortho Dentofac Orthop March 1983.
8. Little, Riedel Artun, Am J Ortho Dentofac Orthop. May 1988.