

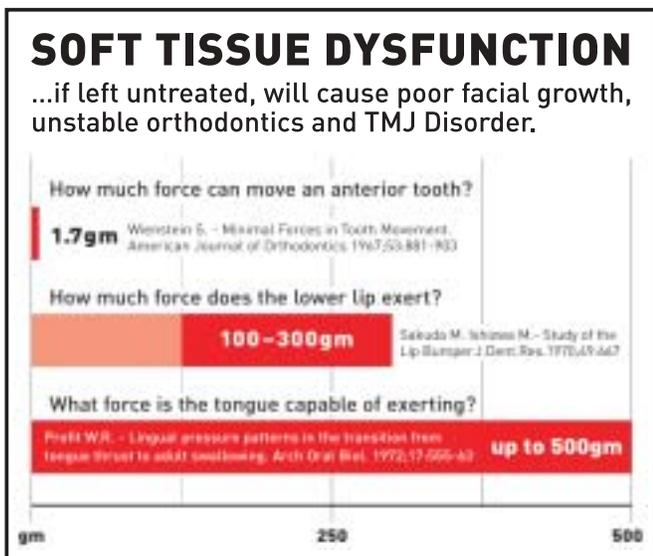


# MYOFUNCTIONAL RESEARCH CO.

- designers and manufacturers of innovative dental appliances -

[www.myoresearch.com](http://www.myoresearch.com)

Considerable research now demonstrates the negative effects of mouth breathing and incorrect swallowing patterns on cranio-facial development. These orthodontic problems were often overlooked because effective, convenient treatment was not readily available.



Correcting these myofunctional habits has been shown to improve cranio-facial growth and lessen the severity of malocclusion. Convenient and simple orthodontic appliances that retrain the oral musculature and eliminate poor myofunctional habits can ensure excellent outcomes for both orthodontists and patients.

“To be effective, orthodontic treatment must address the underlying myofunctional problems causing the orthodontic disorder,” says Dr. Chris Farrell BDS, founder of Myofunctional Research Company. “Research shows that moving teeth is relatively easy, keeping them in the correct position is where the difficulty arises.”

Tom M. Graber, DMD, MSD, PhD, concluded in his 1963 article in the *American Journal of Orthodontics and Dentofacial Orthopedics* that muscle, malformation, and malocclusion are the underlying problems that must be addressed for effective long-term outcomes.<sup>1</sup>

It is on these issues that Australia’s Myofunctional Research Co. has focused its study and appliance design for the past 20 years. As a result, the company’s appliances represent a state-of-the-art response to the considerable body of research demonstrating the link between poor myofunctional habits and poor tooth and jaw development.

Yet despite the research Dr. Farrell finds many orthodontists still, “following orthodontic fashion rather than orthodontic research.”

What the research reveals, is that the muscles are a significant factor in causing malocclusion. The forces exerted

on teeth by the lips and tongue do determine tooth position. For example, only 1.7 grams of pressure is needed to move teeth, yet we know that the lips exert a force of between 100 and 300 grams, while the tongue can exert a force of 500 grams (see graph p.90).

Orthodontic techniques are designed in relation to teeth, not muscles. But despite the fact that muscles are a significant factor in causing malocclusion, they are too often overlooked in treatment approaches. As far back as 1907, Angle drew attention to this fact: “The influence of the lips in modifying the form of the dental arches is an interesting study, and almost every case of malocclusion offers some noticeable and varying manifestation of it”<sup>2</sup>

Properly understanding the myofunctional issue is helped by appreciating what normal function is, Dr. Farrell explains.

“Incorrect arch form is responsible for the high prevalence of malocclusion, but the arch form is primarily a product of the position of the tongue and the function of the lips. Therefore, correction of the soft tissue dysfunction is necessary to maintain a successful and stable treatment result.”

To the challenge that functional appliances do not work, Dr. Farrell points to “the world’s most convenient functional appliance: **the thumb.**”

The skeletal change brought about by thumb sucking is well known and documented. This effect is produced by the thumb creating a narrow maxilla and an open bite, combined with the fact that thumb sucking also trains the tongue to thrust during swallowing. The changes this “functional appliance” produces are permanent and correction of the damage can be a difficult orthodontic exercise.

Dr. Farrell acknowledges that in the past so-called “functional appliances” often produced poor results. He explains that problems were often exacerbated by the majority of removable acrylic appliances, which lower the tongue position



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## Before treatment



**Function always = Form**



Hyperactive mentalis



Space loss



Tongue thrusting



Open bite

## After 7 mths 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

– inducing tongue thrust – and usually making soft tissue dysfunction worse.

“Such appliances fail to retrain the oral musculature or alter incorrect mode of breathing,” Dr. Farrell says.

“It is critical that we inform patients and their parents of all suitable and appropriate treatment options. The best time to treat these myofunctional habits is while children are young – well before conventional orthodontic treatment is required because

appropriate treatments at this stage can support proper and attractive facial development. (See case study p.91) Neglecting such treatment, however, can lead to a more severe malocclusion and more complex, less stable orthodontic treatment.”

The orthodontic professional has a duty to inform patients of the underlying causes of their malocclusion and provide appropriate treatment options. Failure to provide such advice may represent a breach of the orthodontist's duty of care.

In the early 1990's, through Dr Farrell's pioneering work using computer aided, stereo-lithographic design technology, Myofunctional Research Co. developed a universally sized intra-oral appliance with therapeutic characteristics that retrain the oral musculature and consequently improve function.

The company's ground-breaking work produced the TRAINER™ Program now used in more than 55 countries across Europe, the United States, South America, Asia and Australia.

## TRAINER™ Program:

The TRAINER™ appliance program has helped thousands of children by providing active myofunctional training and jaw positioning before, during and after orthodontic treatment.

A key feature of the appliances is a tongue tag that supports proprioceptive positioning of the tongue tip. This is an active training process that is central to the program's effectiveness. A double mouthguard design also trains the child to breathe

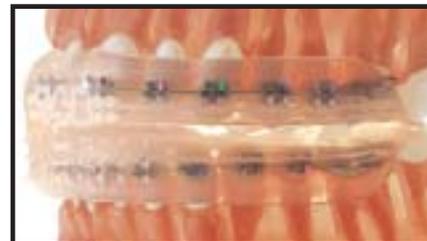
## T4K PRE-ORTHODONTIC TRAINER



through the nose – a process known to considerably improve cranio-facial growth in the developing child.

The Pre-Orthodontic TRAINER™ is used to treat myofunctional habits in the mixed dentition stage making future orthodontic treatment easier and helping prevent aberrant facial development, something that is more difficult to treat as the child gets older.

When the patient progresses to fixed braces, the TRAINER™ for Braces



(T4B) is implemented to reduce soft tissue trauma, continue correction of myofunctional habits, assist Class II correction and treat TMJ symptoms during the orthodontic treatment. The T4B is effective in reducing treatment time and improving stability.

The Functional TRAINER™ (T4F) can be used after orthodontic treatment for retention as well as treating residual myofunctional habits.



The Myofunctional Research Co. appliance range provides a

convenient, effective and low-cost program of therapy for use before during and after orthodontic treatment. The results for patients are improved cranio-facial growth, less complex orthodontic treatment and greater stability. For the orthodontist, this translates into fewer re-treatments.



## References:

1. Graber, TM. "The three M's: muscle, malformation, and malocclusion." Am J Ortho Dentofacial Orthop. 1963;June:418-450.
2. Angle EH. The Treatment of Malocclusion of the Teeth. Ed 7. Philadelphia; Sanders:1907;Chapter 2.