Editorial

Canada, December 2004

Dear Friends and Colleagues

This year I had the opportunity to become a member of the great MRC family, when I was appointed as scientific advisor. This allowed me to be in contact and to meet a lot of people around the world, who share the dream of communicating Dr. Chris Farrell's message: "To treat malocclusions we need first to understand its aetiology, Soft Tissue Dysfunction".

A few days ago, I had the opportunity to meet two great members of the MRC family in Europe (Carmen and Arnold), who suggested me to initiate a way of communication between our MRC family. Thus, today I want to present you this newsletter which I expect to continue editing frequently. In this newsletter, I want to include questions that I have received from colleagues about the Trainer™ system with the answers that I have given to them, some notes about research with the Trainers™ that it is going on or has been developed and, publications that may explain and provide scientific support to the Trainer™ system. In this way, I hope to give you useful information to show those colleagues who still have doubts about the advantages that this system has on the traditional systems of treatment.

As you may see we all need to add, and so, to keep an open communication sharing our doubts, experience, success and even fails, so helping the others with our experiences and facilitating the daily work of each member of this family.

Finally, I want to wish you all Merry Christmas and a wonderful 2005. Furthermore, I want to invite you to continue sharing with me your questions, doubts and comments about the Trainer™ system, as you may see YOU are my greatest stimulus to initiate this communication.

My best wishes

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Some received questions

Is it enough wearing the T4CII only over one hour during the daytime and overnight to produce results? Does the T4CII act in a similar way to the Bionator?

It is not necessary to wear the T4CII 24 hours per day to achieve the goals. You compare the T4CII appliance with the Bionator and you are right in some way they produce similar effects on the mandible. As the Bionator, T4CII produces its effect by stretching the lateral pterigoid muscle over the time the appliance is worn. Once the appliance is taken out of the mouth, the lateral pterigoid enters in hyper-contractile movements, which makes the condyle moves forward and backward for a certain time. These little movements of the condyle are not noted by the patients, who generally interpret this as a discomfort to achieve a proper occlusion immediately after he takes out the appliance. These movements of the condyle stretches the retrodiscal pad (known as Zenckel's zone), where the blood vessels release nutrients and growth factors into the condyle producing the mandibular growth that we know is produced by this type of appliances. Thus, wearing the appliance prepares the system and, mandibular growth is produced when the appliance is out of the mouth. Therefore, the suggested time to wear the appliance is enough to produce such effect on the lateral pterigoid, and so, to stimulate mandibular growth as you expect.

You get more advantages with the T4CII than with the Bionator. The T4CII permit a higher development of the dental arches. This is achieved by two ways. Firstly, the appliance changes the position of the tongue. In patients Class II with deep bite, the tongue is generally positioned so high on the palate with the tip producing a high pressure on the incisors. In patients Class II with open bite, the tongue is flattened and generally the tip is resting on the lower incisors. The Trainer™ restricts the usual position of the tongue stimulating it to maintain a more physiological position (with the dorsum about the gingival third of the premolars' crown and the tip resting behind the upper incisors). This produces a transversal force on the upper arch during the tongue resting, and also, a transversal force on the lower arch during swallowing of saliva. Secondly, the external flange of the appliance separates the buccinator and the orbicularis oris, which neutralizes all the forces that these muscles may produce on the external faces of the upper and lower arches. This effect on the muscles of the cheeks and lips permits to synergize the transversal forces developed on the arches by the change in the position of the tongue.

If you want to read more about the physiology involved in the function of the appliances, I invite you to read the papers by Petrovic and Stutzmann published in the American Journal of Orthodontics and Dentofacial Orthopedics (about the role of the lateral pterigoid) and by Proffit (Angle Orthodontist), Kawamura (Bulletin of the Tokyo Dental College), Meyer (International Journal of Orofacial Myology) and Niikuni (Journal of Clinical Pediatric Dentistry) about the physiology of the tongue.

My patient looses the appliance over the night. What can I do?

The Trainer™ and in general all the functional appliances need to be accepted by the patient as a treatment. It means the patient has to be motivated to use the appliance as it is a bulk that will be introduced into his mouth. If the patient is forced or pushed to use the appliance without his consent, he will tend to loose it overnight because he is trying to avoid his use. This is an unconscious response. Therefore, you have to show the patients in a very clear way and using words that he understands why you are recommending him to use the appliance and how beneficial the treatment will be for him.

Another factor that you have to keep in mind is if the patient is breathing through the mouth and his airway is blocked. Generally, hypertrophy of the adenoids reduces the quantity of air that the patient needs, and so, the patient has to breathe through his mouth. In this case you may observe that the tongue is protruded because the patient needs to avoid the contact between the tongue and the adenoids (this contact produce a lot of discomfort). When you put an appliance into the mouth in a mouth breather patient with hypertrophied adenoids, particularly a Trainer™, you are stimulating the tongue to go to a more physiological position. Thus, the tongue retrudes and touches the hypertrophied adenoids. Immediately the tongue overreacts to avoid this situation and the appliance is expulsed from the mouth. Therefore, you have to diagnose if your patient has hypertrophied adenoids, and if so, you have to interact with the specialist in this area and probably to discuss with him about removing the adenoids prior to start your treatment.

In addition, patients with Class II and Open bite generally present a flattened tongue with the tip resting on the lower incisors. When you put the appliance into the mouth, the tongue is restricted and stimulated to go to a more physiological position, with the dorsum about the gingival third of the premolars' crown and the tip resting behind the upper incisors. Remember that the tongue is formed by 13 muscles. If the patient is not able to seal the lips when he is wearing the Trainer™, the force of the tongue overwhelms the resistance of the lips and the patient spits the appliance out. In this case, I would recommend you to cut off the anterior part of the external flange of the Trainer™ (Incisors area). Thus, you permit the patient to become comfortable with the appliance using it for 1-2 months, and then you put a new Trainer™ with the complete external flange.

As you can see, every case has some particularities and we have to observe in detail what is going on with each patient. I can not give you a specific answer for your case as I got so minimal information, just: “the patient is loosing the Trainer™ at night”. I would be able to help you more if you provide me with more information such as a picture of the x-rays, photos of the patient with and without the appliance and pictures of the cast models (separated and in occlusion).

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Brief News

We are please to inform you that this year a paper about the effects of the Trainer™ system on the cranio-facial complex was published in the Angle Orthodontist by Usumez S, Uysal T, Sari Z, Faruk Ayhan Basciftci FA, Karaman AI and Guray E (Angle Orthod 2004 Vol 74 (5): 605-609). Congratulations to this group of researchers in Turkey.

Clinical cases treated with the Trainer™ system has been presented in the interceptive chapter of a orthodontics book published in India. This chapter was written by Dr. R. K. Rajesh Ahal. Congratulations to this active study group in India.

A paper titled “Soft Tissue Dysfunction: A missing clue in orthodontic treatment” by Dr. German O. Ramirez-Yañez and Dr. Chris Farrell has been accepted to be published in the World Journal of Orthodontics. We will inform you immediately it gets published.

As you may see, research with the Trainers™ is moving around the world. I want to invite you to tell me what is going on with the Trainers™ in your area, so we can share your achievements with the whole MRC family.

Best wishes and happy holydays for everyone.