Carrière explains facially driven treatment for Class II and Class III

A Q&A with the inventor of the Carrière Self-Ligating Bracket and the Carrière Motion Appliance, including the new Class III appliance

By Ortho Tribune Staff

Dr. Luis Carrière obtained his dental degree from the University of Complutense in Madrid (UCM), in 1991. He then attended the University of Barcelona (UB), where he completed his orthodontic training and received his master of science in orthodontics, cum laude, from the University of Barcelona.

Carrière is the inventor of the Carrière Self-Ligating Bracket and the Carrière Motion™ Appliance. He is a world-renowned lecturer on these products, in addition to many other topics.

How long has the Motion appliance for Class III malocclusions been on the market?

We just presented the appliance this year at the AAO annual meeting, but the approach is not new; we have been working on it for few years. The Class II appliance was invented for Class II cases. But after giving several courses on Class II, especially in Asia, many doctors were asking about the Class III possibility of using it. So one day we started to try and see if this was a good option, and it’s showed amazing results of using the Class II motion appliance in Class III cases.

So we realized, this appliance was really changing the relation in which the mandible interacts with the maxilla, harmonizing soft tissues and balancing the face of the case. We were amazed and totally surprised about the fantastic facial outcomes that we were having only with a minimal approach like this. We decided to create a special design according to the needs of the mandible: the Class III Motion appliance. So the approach is not new. But the appliance by itself, the real strictly Class III appliance, is brand new and officially presented at the 2015 AAO Annual Meeting.

Could you briefly describe the design features of the Motion Class III Appliance? Why does the Class III Motion only have a simple molar bonding pad with this little step in the arm? What is the function of this little step? Why did you give it up on the joint design you have with the Class II Motion (rotation of the molar)?

If we take a look at occlusion of the lower arch in relation with the upper, normally there is an inclination of the posterior segments because the buccal side of the lower molars should fit in between the buccal and the lingual pad of the upper ones. This means that if we use the traditional Class II pad ball, its design is too bulky and, many times, it can interfere with the occlusion at the beginning of the bonding. We decided to create a flat surface on the posterior segment in order to avoid the unnecessary collisions on the Class III mandibular positioning of the appliance.

Now, what we have created is a design that is very clean and simple but has exactly the same features that we need. But, at the same time, we have adjusted it to the real needs of the Class III malocclusion. So we used Class II Motion appliances at the beginning in Class III patients, but we needed to create something that was really special and was really dedicated to the Class III cases. We did that by flattening the profile, that is now very slim, and it is a very clean appliance, completely dedicated and designed for Class III treatments.

It is very important to understand that the Carrière Motion appliance is the way in which we start 95 percent or more of our fixed cases in our office. This means that Motion is not restricted only to Class II or Class III malocclusions but is also extremely useful for those cases in which we have small crowding, and we need to open limited space in between upper or lower incisors in order to align the upper teeth or the lower anterior teeth without protruding.

At the same time, this accomplishes what we like to call a Super Class I posterior occlusion. So we use the Motion to start the case, simple and minimalistic. I personally feel this is an elegant and efficient approach to the case that diminishes dramatically the period of brackets in mouth for our patients. Shortening the bracket-in-the-mouth stage is a very important factor to most of society today.

Regarding invisible systems such as Invisalign, this approach works amazingly well in simplifying the treatment and dramatically shortening the aligner period. So many complex cases of Class III treatments are dramatically shortened without extractions, orthognathic surgery or facemasks.

* See CLASS III, page 6

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How many cases have been treated with the appliance so far?

In our office, right now around 100 cases already have been treated with Class III Motion. It can be astonishing to see the consistency of the extraordinary change to the face of the patient. Changes that you could imagine have been accomplished surgically are not even being treated with a single extraction. I think the reason for this effect is the balanced combination of distalization of the lowe

r posterior segments, change of the posterior occlusal plane and counter-clockwise rotation of the mandible, completely changing the relation of the maxilla with the mandible. Distalization in the mandible is extremely fast and efficient, mainly because we have an almost "empty" highway in between the external cortical bone and the internal cortical bone. That is the reason why we need very low force elastics in terms of traction. We only use 6¼ oz., and we normally never use 8 oz. in Class III as we normally use the Carriere Motion appliance. This is a relatively new approach. We have already been able to create the new Carriere SLX, and we achieve a masterpiece of precision, so our engineers did their work, and we achieved the highest level of technical bracket outcomes. It's a real game changer.

Fig. 4a, 4b: Patient before (a) and after (b) 14-month treatment.

Fig. 5a, 5b: Initial intra-oral shot (a), after one month of treatment with Class III Motion appliance, (b) shows the transparent prototype, which is not yet available, and (c) final treatment outcome in 14-month follow-up.

Fig. 6a, 6b: Patient before (a) and after (b) three month of treatment with Class III Motion appliance.

Fig. 7: Initial intra-oral shot.

What forces of elastics do you recommend for children and adults, and what is the recommended wearing time?

Wearing time of elastics normally with the Motion appliance is 24 hours, except for eating, and with fresh elastics after each meal. In Class III in between the external cortical bone and the internal cortical bone in the sagittal direction, from mesial to distal, we have a highway. There is no resistance, so we don't need that much force. We only use 6 oz.

In mixed dentition cases, younger cases, such as a 7-year-old, in which we place a Class III Motion Appliance from the lower first molar to the lower temporary canine, what we are going to do is add a Class III Motion Appliance, and we will have the results very soon. We can see clinically good and stable occlusion along many years. For example, you could now observe in my lecture several cases that have been out of retention for more than 10 years with a complete stability. But now we need explanations from the experts.

Are there any studies that show the proportion of the malocclusion effect in the upper jaw and the proportion of the distalisation effect in the lower jaw of the total correction of the Class III?

This is a relatively new approach. We have no studies at this point, but related to the Carriere Class II Motion effect, Professor James McNamara from the University of Florence, Dr. Franchi from the University of Florence Middle East, and the Pathologie Institute, are studying our records and measuring them in order to give answers to this. They are tracing our cases to see what is going on, so we will have the results very soon.

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We are balancing the face of the patient in a very good way. How? By extracting teeth that were not necessary to extract. It’s amazing the change that we can do in adult cases. It’s a great alternative to surgery in adult cases, and it is something that is going to really establish a new scenario for the Class III patients.

You call your new series of lectures Facially Driven Treatment For Class II and Class III. What are your key facts in this matter and why should the factors facial, skeletal and dental not been isolated during the treatment?

Traditionally in orthodontics, we have been focusing a high percentage of our attention on dental interests, looking for good occlusion of the molars, good occlusion of the canines, if there is a midline correction, overbite, overjet and sometimes focusing too much on teeth. The patient is a human being with a face, with a position of bones, with teeth, and everything has to be correctly adjusted and balanced.

So the patient has to have a nice face, a nice facial proportion and relation. We never should forget that behind the face there is a human being who wants to be successful in life, that wants to have natural social relations and wants to have the chance to establish relationships and fall in love.

We as orthodontists are fully responsible for the face of the patient, and this is very important to highlight.

Carrière system is about this and, together with Henry Schein Orthodontics worldwide, we are trying to spread this message. We, the orthodontists, are able to manage the soft tissues of the profile of the patient in a very good way. How do we do that? Instead of fulfilling with synthetic material as a cosmetic surgeon does, we use bone and teeth and bring the soft tissues in a better and natural position. We are able to balance the relation between the mandible and the maxilla. We are balancing the face of the patient and behind that we are balancing the life of the patient. We’re giving self-confidence and returning happiness to them.

On the opposite, we can totally ruin the life of the patient. How? By extracting teeth that were not necessary to extract. I am totally convinced that today we cannot look only at orthodontics. No more, never again, can we see it as just a set of teeth.

The patient is a human being with a face, with fears, with dreams, with projects, and we have to honor that.

With the Carrière system, with the Motion appliance, with the Carrière SLX bracket, with the wire sequence, with the respect for the tissues, for the physiology of the orthodontic movement, for the face of the patient, we try to bring benefit to our patients. Many profiles have been affected in the past, so our objective is to create tools to be added to the orthodontic armamentarium that help us in this direction.

To understand you correctly, the orthodontist should put much more emphasis on the patient’s facial harmony. Why? Orthodontics is facial. Orthodontics is face. The orthodontist is responsible for the face of the patient. In my understanding of orthodontics, the orthodontist has to be an expert on repositioning teeth in the correct position, repositioning bones in the correct position and balancing profiles. He is responsible for harmonization of soft tissues and, if necessary, is also an expert who can sculpt the lips with dermal fillers, because nobody understands better than an orthodontist the anatomy and proportionality of a lip (Orthodontist) should also have expertise on the use of Botox for excessive gingival exposure on patients with gummy smiles.

So we are responsible for the face and not only that. I think we also have to educate people that if they want to have a beautiful face, instead of going to the cosmetic surgeon, they should start by going to an orthodontist.

The orthodontist will be able to give a nice face, a natural and elegant outcome, and if this is not enough change, then as a second option, go to the cosmetic surgeon. But the first choice should be the orthodontist.

If society understands the importance of orthodontics on the face, a big percentage of new patients will fall into orthodontics. We have to start upgrading our specialty. Orthodontics is all about esthetics, art and science.