Orthodontics is gradually evolving towards a more dynamic concept of occlusion, of functional harmony and biologic/mechanic interconnec tion.

Luckily, the progress from the old "static concept" of Class I occlusion to the present concept of functionally supported occlusions is not completely new to the orthodontists. This is what WJ Thompson wrote in 1979 in his article in Angle Orthodontist entitled "Occlusal Plane and Overbite". (Ref. Angle Orthodontist, 1979 January 49(1):47-55).

Hence, we are not talking of a new concept!

What can these two studies offer to orthodontists?

Form and Function, this is what our teachers have taught us to make a correct diagnosis, to set a proper plan of health care and to define the objectives of stability and, above all, the maintainability of the results of our orthodontic treatments. Let's see a clinical example of how form and function determine diagnosis and prognosis.

A patient aged 25 was orthodontically treated in the past with fixed orthodontic appliances. He came to our attention due to progressive re cession of 4.1, increase in sensitivity, and difficulty to maintain proper oral hygiene. The patient has unner vely been brought to us for period onal surgery. Upon examination, we discovered severe gingival reces sion of 4.1 associated with buccal root inclination and traumatic contact with the antagonist for extraction. It also featured a fixed lower retainer, from 3.2 to 4.2, repeatedly repaired.

The old fixed retainer previously managed incorrectly has become an active retainer on 4.1 with buccal root torque unchecked. A proper morphologic diagnosis must consid er the three-dimensional position of the root in the alveolar bone and not just detect the buccal gingival reces sion, whose single consideration has already lead to a treatment failure.

The treatment plan involved: (a) removing the old retainer and fixing a lingual appliance by self-ligating brackets 1 TR from 3.4 to 4.4 with the purpose of aligning the lower front teeth, (b) correcting the root torque of 4.1 and (c) eliminating the occlusal trauma to allow recovery of an adequate periodontal health condition and secure maintain ability. The required correction has been completed in 8 weeks from the removal of the old retainer and the simultaneous bonding of the lingual orthodontic appliance. The buccal gingival recession of 4.1 has improved significantly, only thanks to its repositioning in an appropri ate periodontal environment, which has also improved the conditions for maintainability. The lingual appliance, very well tolerated by the patient, is maintained as a fixed retainer.

In this case, a pantomography had been done before the treatment, which made no apparent morphologic contribution to the clinical diagnosis.

Should a tele-radiography have been useful in this case?

Obviously not! How could we then make any use of tele-radiography?

In an editorial in the American Journal of Orthodontics of 2008, Dadvand, V.Turpin says:

"If the intracranial palpation of maxillary cavities in an 8 year-old child is difficult and there is a reasonable suspicion for a complicated eruption, you should consider doing a tele-radiography!"

In the same editorial, we found the following recommendations by the British Orthodontics Society:

- a radiography should be done only after an accurate clinical examina tion and when it offers an effective diagnostic advantage for the patient;
- generally, the advantages of a radiographic survey exceed the risks;
- the risk level is justified only if the patient has a health advantage with the ALARA dose (ALARA: as low as reasonably achievable) (Ref. Am. J. Orthodontist Dentofacial Orthop. 2008;134:597-596).

A review of relevant literature in the University of Oporto, Portugal, published in Progress in Orthodontics in 2013, entitled "Validity of 2D lateral cephalometry in Orthodontics: A Systematic Review", reveals: The literature suggests that the lateral cephalometry has been applied without adequate scientific evidence, irrespective of whether it is mandatory for the diagnosis and without regard to its therapeutic ef ficiency. (Ref. Ana R Durao, Fhia Pitt ayapart, Mota Ivete R, Rockenbach, Raphael Olzewski, Joao Ng, Annon P Ferrinha and Reinilde Jacobs. Pro gress in Orthodontics 2013 14, 3(10)

This article, as many other publica tions, recommend that additional research is required on a larger num ber of patients to clarify better the matter. The message is pretty clear.

The cephalometry has been used in orthodontics for long time for di agnostic purposes and for training of generations of orthodontists, which helps them understand better the significance of angles and planes. It does nothing more than express numerically what patients' maxil lary and cranial bones morphology provides.

Of course, with study and experi ence as fundamental prerequisites, wise orthodontists would likely not need those numbers at all.

Moreover, could we do the cephalometry without radiation for a pa-
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By Dentsply Sirona

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