



OCCLUSION DIARIES



Discussing (Centric) Relationship

João **Palmieri**

THE DEFINITION OF CENTRIC RELATION (CR)

AND its clinical application still generate much controversy within dentistry. The latest version of the Glossary of Prosthodontic Terms (GPT-9) defines Centric Relation as “a maxillomandibular relationship, independent of tooth contact, in which the condyles articulate in the anterior-superior position against the posterior slopes of the articular eminences; in this position, the mandible is restricted to a purely rotary movement; from this unstrained, physiologic, maxillomandibular relationship, the patient can make vertical, lateral or protrusive movements; it is a clinically useful, repeatable reference position”.¹

In an investigation of the positions produced by five different CR registration techniques, the authors state that, although the registering methods are highly controversial, all methods tested produced results with high intra-technical reproducibility. The Roth technique (using a wax JIG) and the Long technique (with the Long strips) produced results closer to the GPD-9 definition when compared to Dawson’s (pressure in the mental region), and tongue placement on the palate techniques.² Both Long’s and Roth’s techniques are very similar to another method, called Lucia’s technique. Vítor Lucia stated that “if you adjust 28 restorations on the articulator and

then install them in the patient's mouth, and the patient occludes and feels immediate comfort, then you have a good technique".³

Much is discussed about the use of CR in prosthetic treatments. It is common to hear the statement: "when doing a full mouth rehabilitation, CR should be followed. On the other hand, when restoring only one or a few teeth, Maximum Intercusation (MI) should be followed". When cast models mounted in CR are analyzed, the presence of wear facets indicate discrepancies between CR and MI, denouncing a repetitive path between these two positions. If the rehabilitation follows a dental position that differs from the condyle position, the clinician needs to know that the patient will use both positions. This fact, per se, may not be considered pathological. Fortunately, the idea that these two positions need to coincide is in the past, and there is no evidence to support this conduct.⁴

However, identifying the maxillomandibular position, regardless of dental contact, before

delivering any treatment, seems to be necessary. This way, the risk of a misleading occlusal diagnosis is reduced. The case that illustrates our conduct is quite didactic. The orthodontic treatment was entirely planned with the models articulated in MI and a cephalometry. It is a case of mandibular prognathism associated with a maxillary deficiency. Orthodontic treatment was presented as an alternative to orthognathic surgery. According to the patient's report, the orthodontist warned that it would be necessary to extract the two first lower premolars to make compensation possible. They also evaluated that, at the end of the treatment, the second upper right molar would be without function and should also be extracted. The result is presented here in the form of models mounted on the articulator (Figures 1 to 10).

Articulated models mounted on should not be a complicated task. The complexity arises in the interpretation of the findings. However, this is a topic for the next column.



Figures 1 to 5: This sequence of images shows the casts articulated in MI. The condylar locks (in orange) of the A7Plus articulator (BioArt, São Carlos, Brazil) are released, as well as the elastic connections allowing the upper arch to be moved to a position of more significant dental contact. The right side shows the upper second molar with a significant extrusion and the mesiolingual cusp tangent to the antagonist mucosa. There is a considerable compensation of the lower anterior teeth, but the alignment of the canines on the right side is satisfactory, with an apparent Class I Angle relation. On the left side, the canine is in a Class III relation, and the absence of the first molar, the reason for the initial consultation, can be seen. According to the patient's report, tooth 14 was lost after a sequence of small and repeated fractures that culminated in a catastrophic root fracture.



Figures 6 to 10: The CR was recorded using Lucia's JIG technique, initially described in 1964 and republished in 1978³. It is possible to observe the significant interference of the second upper right molar. The path from CR to MI is marked on this tooth, and it is identified in the form of wear facets. In the same right sagittal view, it is possible to observe that the relation between the canines has changed from a class I to a class II. It is also possible to observe some over-correction in the inclination of the lower incisor teeth. It is possible to observe the gap between the arches on the left side, due to the centric contact. It is also observed that the Class III relation between canines is now a Class I. The question is: if the orthodontist responsible for this case had access to this information, would they change something in the planning and conduction of this case?

REFERENCES

1. Ferro K. Glossary of prosthodontic terms. Ninth Edition. *J Prosthet Dent.* 2017;117(5S):e20.
2. Swenson A, Oesterle L. Condylar positions generated by five centric relation recording techniques. *Oral Biol Dent.* 2014 [Internet];2(8). Available from: <http://www.hoajonline.com/journals/pdf/2053-5775-2-8.pdf>.
3. Lucia V. Position Paper. In: Celenza F, Nasedkin J. *Occlusion, the state of the art.* Chicago: Quintessence; 1978. p. 95-106.
4. Kandasamy S, Greene CS, Obrez A. An evidence-based evaluation of the concept of centric relation in the 21st century. *Quintessence Int.* 2018;49(9):755-60.

JOÃO PALMIERI¹⁻³

1. Master in Ciências da Saúde/Prótese Dentária, Universidade de Brasília.
2. Specialist in Implantology, EAP/ABO-DF.
3. Specialist in Reabilitação Oral, DATO-Buenos Aires.

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