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TITLE: CENTRIC RELATION RECORDING TECHNIQUES IN PATIENT WITH CRANIOMANDIBULAR DYSFUNCTIONS

BACKGROUND

The definition of the **Centric relation** has encountered several changes for the last decades: from the one stated in The Glossary of Prosthodontics (1968)- "the most posterior and superior position", to the one specified in The Glossary of Prosthodontics (1987)- "the most anterior and superior position". The authors of the latest GPT-8th edition (2005) have settled seven acceptable definitions, which emphasize some of the few important aspects:

1. The CR is the position of the condyles related to the maxilla, contacting with the finest avascular portion of the disk.
2. The CR is the most anterior and superior position of the condyles, independent of teeth contacts.

"The centric jaw relation is the most retruded position of the mandible to the maxillae at an established vertical dimension which is repeatable and recordable."

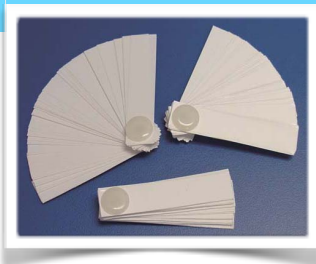
There are several methods stated in literature, claiming the CR record: swallowing, chin point guidance (Helkimo 1971), bimanual manipulation (Dawson 1989). Deprogramming implies specific devices that are used to eliminate muscles engrams, prevents the activation of the neuromuscular avoidance mechanism and allows the mandible to achieve the CR position easier. Some of the most utilized techniques is the Leaf-gauge technique.

The Leaf-Gauge technique is used in the dental practice for the registration of jaw records in centric relation and allows assisting the recording of a reproducible jaw position for restorative and prosthodontics treatments. This technique, for the centric relation recording, was assisted by electromyography.

The anterior jig technique will help obtain centric relation by eliminating proprioceptive responses and deprogramming muscles. The jig allows to set the condyles against the eminence in an unstrained position.

The four common uses for the leaf gauge and anterior jig techniques are:

1. Loading the TMJ.
2. Deprogramming the lateral pterygoid.
3. Identifying first point of contact in CR (for the leaf gauge technique).
4. Obtaining CR bite records.



METHODS AND MATERIALS

10 patients with signs and symptoms of the temporo-mandibular disorders. The patients were examined clinical and paraclinical. The centric relation was determined using the anterior jig and leaf gauge technique for further splint therapy .

For the first technique, a random amount of leaves is placed between the patients central incisors at the midline, parallel to the lingual surface of the maxillary central incisors. The patient is asked to slide forward, back and bite slightly. The contacts between lateral teeth are absent. In addition, several leaves are removed until the patient feels the posterior contact. This contact was verified with articulating and represents the centric relation, with the condyles in the anterior-superior position. The Leaf-Gauge technique was assisted by electromyography.

For the second technique, centric relation was determined using a jig made of auto-polymerizing acrylic resin on mounted casts, adjusted in the mouth. For fitting, we have used an A-silicone, that was painted on the curved surface of the jig. Next, the jig is placed on upper centrals. The flat portion of jig is parallel to lower incisors and the bottom of the jig is parallel to the incisal edge of the lower anteriors. This position is obtained using a whale tail. The articulating paper was placed on the jig and the patient is asked to slide his lower frontals forward and back, marking the jig. The most posterior mark coincides with the most superior condylar position. The bite has been taken using the A-silicone.

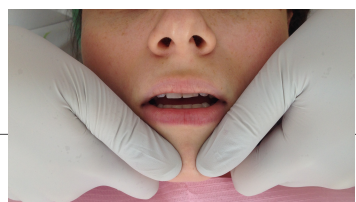


Fig.1 Using the bimanual method (Dawson) for centric relation recording



Fig.4 Recording the first occlusal contact with articulating paper



Fig. 1.2. Place the jig on the upper centrals and place the Whale Tail directly beneath the jig. Ask the patient to bite down and hold. The Whale Tail levels and orients the jig to the occlusal plane. It parallels the jig with the occlusal plane anteriorly and posteriorly and in a right and left direction as well. Allow to set – approximately 45 seconds.



Fig.2 Placing leaf gauge on the incisors, at the midline

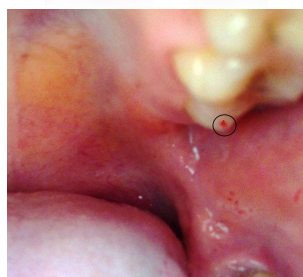


Fig.5 Visualisation of the first occlusal contact



Fig.3 Sliding forward the mandible on the leaf gauge



Fig.6 Centric relation recording



Fig.3.4. Using articulating paper, confirm that the lower centrals are contacting the jig evenly. Place the articulating paper between the jig and the lower centrals. Ask the patient to slide the lower incisors forward and back several times marking the jig.

Fig.5 Centric relation recording

CONCLUSION

Both techniques allow the neuromuscular system to seat the condyles in their individual centric relation position, the ideal position for the treatment.