

Dental-Orthodontic Orthopedic Consideration to The Treatment of Cervical-Occipital Occlusal Malalignment Using A PRI Oral Orthotic and Light Wire Appliances

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The Postural Restoration Institute® has been a leader in the assessment and treatment of mal-patterned occipital occlusal rest positions since the late 1990s. The PRI Mandibular Occipital Occlusal Orthotic (MOOO) and the PRI Mandibular Molar Occlusal Orthotic (MMOO) were designed as a temporary intervention to assist freeing up the occlusal and cranial compressive forces that limit lateral and anterior posterior dimensions of the cranium, face and the occipital base.

Both the MOOO and MMOO were designed for complimentary use of non-extraction dental orthopedic/orthodontic treatment, utilizing removable soldered wire maxillary appliances such as the Kernott, Crozat, and ALF, when and if needed. These light wire appliance adjustments, along with the limited mandibular neurological referencing provided by the MOOO or MMOO, emphasize the need both the neck and the oral arches have for small, minimal force adjustments, in combination with the tooth minimal interference, that represents ideal cervical, occipital and Class 1 alignment.

Small, minimal anterior and lateral force provided by the light wire dental appliances listed above, is further enhanced by the mandibular freedom and neurological guidance from the simultaneous use of a MOOO or the MMOO. The teeth and their respective periodontal ligament can decompress and advance the maxilla.

The forces that go through the teeth into the premaxilla, the ethmoid, the anterior pole of the falx cerebri, the frontal bone, all effect the reciprocal tension membrane. This force will result in an immediate increase in the amplitude of cranial rhythm.

This anterior force generates desirable posterior force on the posterior maxilla, palatines, and sphenoid, thus enhancing centric occipital occlusion and centric oral occlusion release of pterygoid tension on the sphenoid and mandible. The flexibility of the palatines, pterygoid plates and ethmoid all enable the sphenoid and its sinuses to expand.

Over time centric function of the occiput and oral occlusion will increase and lateral temporal dimension and anterior posterior cranial expansion will reflect more appropriate cervical and lumbar lordotic physiology.

Proper swallowing, nasal breathing, and postural restoration techniques all can be designed to accommodate the pre MOOO and pre MMOO physiological and physical limitations, as the associated cervical spine alignment and guidance provided by mandibular occlusal orientation releases the former cranial and neurological patterned tensile forces.

Light wire appliances are very effective for developing the anterior teeth moving forward, allowing for mandibular repositioning and increasing the oral airway. However, the MOOO and MMOO when used with the light wire appliance, have been very effective for cranial and occipital repositioning and increasing the airway while improving centric alignment of the foramen magnum around the brain stem.

Centric occipital occlusion on the atlas should reference a position of maximal, bilateral, balanced contact between the condyles of the occiput and the cusps of the atlas fossae. Centric dental occlusion refers to a position of maximal, bilateral, balanced contact between the cusps of the maxillary and mandibular arches.

In determining centric oral occlusion, priority is given to the maxillary inter-arch occlusal relationship of the teeth. The mandibular buccal and maxillary lingual cusps of the posterior teeth are in evenly distributed and in stable contact with the opposing occlusal fossa.

Priority should also be given to the occipital inter-anterior arch occlusal relationship to the occipital atlas contact surfaces or the atlas occipital contact surfaces. The inside lateral fossa ridges of the atlas and the occipital condyle outside surface should be evenly distributed and in stable opposing contact with each other.

Centric oral relation is the most retruded, unstrained position of the mandibular condyle within the temporomandibular fossa. Centric occipital relation is the most retruded, unrestrained position of the occipital condyle within the atlas fossa that is centered over and around the dens of the axis that is supported and stabilized by a cervical vertebral column which approximates 30 degrees of extension, when in the sagittal plane.

In centric dental occlusion, or when the mandible is in its most stable position the upper and lower posterior second molars fit together in a way that allow for efficient chewing and biting. In centric occipital occlusion, or when the cervical spine and atlas are in the most stable position, the upper occipital condyle and the lower outer surfaces of the atlas fossa fit together in a way that allows for controlled and aligned head nodding, turning and bending for efficient chewing and biting.