Introduction

Treatment planning of extensive dental restorations necessitates a deep understanding of the three factors that influence occlusal morphology and mandibular movement. They are the two temporomandibular joint complexes and anterior guidance. The aim of this poster is to understand the influence of anterior guidance on mandibular movements, to differentiate between the envelope of function and envelope of motion, and to evaluate functional occlusion in supine and upright positions.

PART I: Anterior Guidance and Mandibular Movement

Anterior guidance is the occluding surfaces of maxillary and mandibular anterior teeth and their effect on mandibular movement. Even though mandibular pathways cannot be modified, anterior guidance is the dynamic relationship that allows the dentist to control mandibular excursive movements. The condylar functional movement has some resiliency while the anterior guidance has none; thus, incorporating 0.5-1 mm of centric freedom has been suggested. Lack of anterior guidance can have a traumatogenic effect on the joint and an increased EMG activity in the masseter and temporalis. To establish anterior guidance, the casts should be mounted on the articulator using a facebow and centric relation record. The condylar inclination should be registered using protrusive or lateral record. Then, the articulator condylar setting is reduced by 10 degrees which will reduce the cuspal inclination by 5 degrees.

PART II: Envelope of Function and Envelope of Motion

Envelope of motion is the area defined by the extreme mandibular positions starting from centric relation. Envelope of function is the occlusal and rest mandibular position that falls within the envelope of motion. During a normal chewing cycle, the mandible functions within the border movement and rarely reaches such a position. Within the envelope of function, the teeth present average gliding contacts of 1.3 mm during closure and 0.9 mm during opening. Gliding contacts can vary from 0.2-2.5 mm depending on the occlusal scheme and the anterior guidance.

PART III: Functional Occlusion in Supine and Upright Positions

It has been shown in the literature that the positions of the closure path and the terminal-hinge axis can vary depending on the posture angle. In a supine posture, those positions are near the terminal-hinge axis. In an upright position, the rest position and the closure path migrate anteriorly.

Conclusion

Anterior guidance is the most important determinant to the stability of musculature, occlusion, and joint complex and must be evaluated in occlusal rehabilitations through static and functional methods.

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