

## ABSTRACT

**Title:** EVALUATION OF OCCLUSAL AND CRANIOFACIAL PLANES IN TEMPOROMANDIBULAR DISORDER PATIENTS USING BROADRICK'S OCCLUSAL PLANE ANALYZER AND CEPHALOMETRIC METHODS

**Aim:** Assessment of the correlation between the orientation of occlusal plane using custom made Broadrick's occlusal plane analyzer and the craniofacial planes by cephalometric imaging modality in Temporomandibular disorder patients.

**Objectives:** 1) To evaluate the position of occlusal plane by custom made Broadrick's occlusal plane analyzer in normal subjects and Temporomandibular disorder patients. 2) To evaluate the position of craniofacial planes (Camper's plane and Maxillary plane) using cephalometric radiograph in normal subjects and Temporomandibular disorder patients. 3) To assess the existence of correlation between occlusal plane and craniofacial planes in the two groups.

**Method:** Sixty completely dentulous subjects with skeletal class I ridge relation were selected. They were divided into two groups of 30 completely dentulous normal subjects and 30 completely dentulous temporomandibular disorder patients irrespective of gender. For both the groups, the ideal occlusal plane was evaluated using Broadrick's occlusal plane analyzer on both the right and left sides. Right and left lateral cephalograms were taken for each individual. The ideal occlusal plane was transferred to the lateral cephalogram and the inclination of the craniofacial planes (campers plane, maxillary plane) were digitally analysed.

**Results:** 1) Independent samples test was used for cephalometric analysis and it was found that there was correlation between the inclination of Camper's plane and Broadrick occlusal plane on the right side ( $p=0.000$ ), and between the inclination of occlusal plane and Broadrick occlusal plane ( $p=0.000$ ). No statistically significant difference was found between maxillary plane and occlusal plane on both the sides. 2) Non parametric Fisher's exact test was used for assessing occlusal plane deviation. The comparison for occlusal plane deviation between the groups was statistically significant on both right and left sides ( $p = 0.000$ ,  $p = 0.038$ ). 3) Frequency and percentage analysis were done for the type of deviation (anterior or posterior) for the TMD patients. Occlusal plane was found to be deviated anteriorly more than posteriorly.

**Conclusion:** The ideal occlusal plane reconstructed using the Broadrick occlusal plane analyzer has positive correlation with the orientation of the Camper's plane in dentulous Temporomandibular disorder patients. Within the limitations of the study, it can be concluded that Broadrick's occlusal plane is significantly related to Camper's plane in Temporomandibular patients