



ASSOCIATION BETWEEN AGE GROUPS & OCCLUSAL PLANE USING CUSTOMIZED BROADRICK'S OCCLUSAL PLANE ANALYZER AMONG 18-60 YEARS OLD POPULATION IN KHED CITY: A CROSS SECTIONAL STUDY

Dental Science

**Dr. Varsharani
Dhakne***

Assitant Prosthodontist, Teethzz dental cosmetic and implant centre Pune.
*Corresponding author

**Dr. Premraj
Jadhav**

Professor & HOD Yogita Dental College & hospital Khed,

Dr. Milind Limaye Reader Yogita Dental College & hospital Khed,

ABSTRACT

The determination of occlusal plane is one of the most important clinical procedures in Prosthodontic rehabilitation of the patients. Correct occlusal plane of orientation is one of the most important factors for the stability of the removable dentures and for the achievement of good esthetics, phonetic and masticatory function as well as for the patient's satisfaction. When the occlusal plane of orientation is lost by complete or partial edentulism, it should be relocated correctly by means of Prosthodontic restoration. In prosthodontics to locate the correct occlusal plane one of the instruments used is Broadrick's Occlusal Plane Analyser (BOPA) which is easiest and hassle free. BOPA is used to determine and achieve an occlusal plane that fulfills both the functional, occlusal as well as the aesthetic requirement in cases that require full mouth rehabilitation. Total 40 subjects are selected 20 from urban area & 20 from rural area of 18 to 60 years of age group. Out of 40 subjects 20 are females and 20 are males.

KEYWORDS

Broadrick's Occlusal Plane Analyser, esthetics Curve of Spee, Occlusal plane etc

Introduction:

The determination of occlusal plane is one of the most important clinical procedures in Prosthodontic rehabilitation of the patients.

Correct occlusal plane of orientation is one of the most important factors for the stability of the removable dentures and for the achievement of good esthetics, phonetic and masticatory function, as well as for the patient's satisfaction.

When the occlusal plane of orientation is lost by complete or partial edentulism, it should be relocated correctly by means of Prosthodontic restoration. [1]

An occlusal plane analyzer has long been used to assist the operator in the development of an initial mandibular occlusal plane in diagnostic casts and later as an integral part of both the contours of the definitive restorations and the guidelines for the actual tooth preparations [2-4].

The curve of Spee may be pathologically altered in situations resulting from rotation, tipping, and extrusion of teeth. Restoration of the dentition to such an altered occlusal plane can introduce posterior protrusive interferences [5].

Such interferences have been shown to cause abnormal activity in mandibular elevator muscles, especially the masseter and temporalis muscle [6].

This can be avoided by reconstructing the Curve of Spee to pass through the mandibular condyle, which has been demonstrated to allow posterior disocclusion on mandibular protrusion [7].

As the angle of condylar guidance is greater than curve of Spee, posterior disocclusion is achieved [8]. The Broadrick flag permits construction of the curve of Spee in harmony with anterior condylar guidance allowing total posterior tooth disclusion on mandibular protrusion. Its use assumes proper functional and esthetic positioning of the mandibular incisors [9]. So Aim of this study is to check the association between age groups & occlusal plane using customized Broadrick's occlusal plane analyzer among 18-60 years old population in Khed city.

Subjects and Methods:

Materials:

Custom Made Broadricks occlusal Plane analyzer will be used to determine the occlusal plane along with the instruments like Semi adjustable articulator, Compass, Divider, Digital Vernier Calipers, metallic scale, led marking pencil, diagnostic instruments.

A population of 40 partially dentulous subjects of age groups starting from 18 to 60 years, including 20 male and 20 female subjects.

SELECTION CRITERIA

Inclusion criteria:

A population of 40 partially dentulous subjects of age groups starting from 18 to 60 years, having 20 male and 20 female subjects were selected. 20 subjects were selected from urban area & 20 subjects were selected from rural area. Partially dentate patients having fully erupted 2nd Molar were selected for the study. Subjects had no history of orthodontic treatment, any facial trauma or surgery causing asymmetry, all healthy permanent teeth were present in normal arch form and alignment, be no gross dental restorations that may alter the plane were selected.

Exclusion criteria:

Subjects under the age of 18 years & above 60 years will be excluded from the study. Subjects having teeth that were used as R.P.D or F.P.D abutments were excluded from the study.

Methodology:

1. Alginate impressions of the maxillary and mandibular dentition for all the 40 subjects will be made with the help of stock perforated trays.
2. The face bow transfer will be performed and maxillary cast will be oriented on a semi adjustable articulator.
3. Later, interocclusal records will be made and the mandibular cast is articulated.
4. The adaptation of the occlusal plane analyzer to the upper member of the semi adjustable articulator using the Broadrick's flag method described by Lynch and McConnell will be done to create the ideal occlusal plane.
5. The anterior survey point, posterior survey point, and central survey point will be located as follows.
6. The anterior survey point will be located on the distal slope of the lower canine tooth, from which a long arc with a four-inch radius will be drawn on the flag with a compass, as anterior survey line.
7. The posterior survey point will be located on the distal slope of the distobuccal cusp of the lower second molar and a short arc will be drawn on the flag to intersect the anterior survey.
8. Anterior and posterior survey lines bisect at central survey point. The point of the compass will be placed at the center of anterior and posterior survey lines (central survey point), and a 4-inch radius will be drawn through the buccal surfaces of the mandibular teeth. (Fig.1).



Fig.1.Intersection of both survey point

9. Where the deviation was outside, the existing curve a positive notation will be given; if the deviation is inside the curve, a negative notation will be given. Significance was assessed at the 0.05 level. (Fig.2.)



(Fig.2.)

Results:

Total population selected was 40 patients among which 20 (50%) was females & 20 (50%) which was males. Measurements were taken in canine, 1st/2nd Premolar, 1st/2nd Molar region. Among 40 patients Right canine was at optimum normal position & more deviation seen in left 1st/2nd molar region. (Chart.1) When we check right & left side more deviation is seen on left side among both the Genders. Though we found slightly higher values among females but statically these values are found insignificant. (chart.2.)

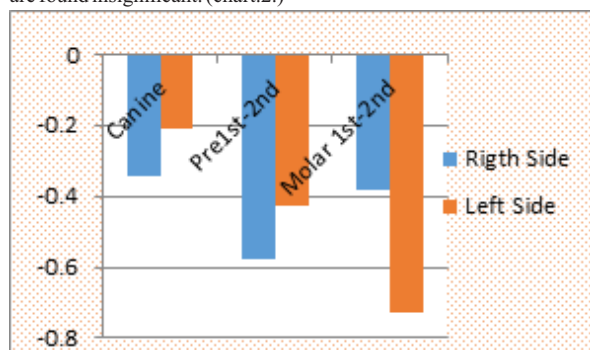


Chart 1 Descriptive statistics among all 6 measurements

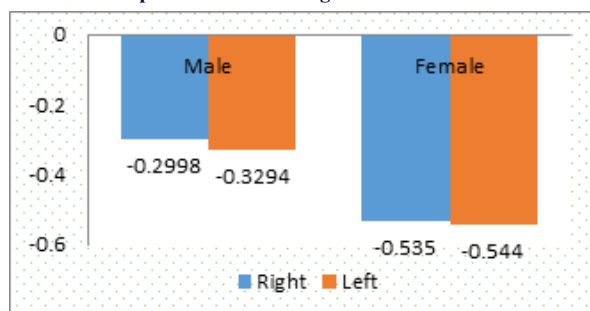


Chart 2 Comparison of Measurements(right/left sided) among Male and female.

As the age advances among both the genders there was statically significant ($p < 0.001$) strong negative correlation ($r = -0.591$) was found along with the right side measurements Correlation coefficient value ($r = -0.757$) was higher for left side. Suggestive that (r) value was more strongly correlated with left side.

Conclusions: As the age advances among both the genders there was statically significant ($p < 0.001$) strong negative correlation was found along with the right side measurements.

Also on left side Correlation coefficient value was found higher for left side, Suggestive that it was more strongly correlated with left side.

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