

S-SPYnometer for Cant

¹Dr. Suga Reddy, BDS., MDS, Sugareddy, Navodaya Dental College, Navodaya Nagar, Mantralayam Road, Raichur - 584103

²Dr. Saranya Sasidharan, BDS., MDS, Saranya Sasidharan, Navodaya Dental College, Navodaya Nagar, Mantralayam Road, Raichur – 584103

³Dr. Pavani Durga Padavala , BDS., MDS, Pavani Durga P, Navodaya Dental College, Navodaya Nagar, Mantralayam Road, Raichur – 584103

⁴Dr. Yashaswini K. V. , BDS., MDS, Yashaswini K V, Navodaya Dental College, Navodaya Nagar, Mantralayam Road, Raichur – 584103

Corresponding Author: Dr. Suga Reddy, BDS., MDS, Sugareddy, Navodaya Dental College, Navodaya Nagar, Mantralayam Road, Raichur - 584103

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Abstract

Smile analysis and smile design is one of the important aspects in orthodontics. Canted plane is one of the major causes of unaesthetic smile and it creates a total challenge to orthodontist. Occlusal cant is frequently related to facial asymmetries due to hereditary, developmental anomalies, environmental trauma, jaw cyst etc. Evaluation of occlusal cant is highly challenging, and its accuracy is always questionable. Conventionally, ala tragal line is used as a guide for assessment of occlusal plane and a fox plane is used to check the parallelism within the arch. Previous methods used such as microfocus X-Ray Computed Tomography, 3 Dimensional stereophotogrammetric imaging are expensive and time consuming. So, our aim of the study is to develop a simple, cost-effective device to

check the horizontal and antero-posterior cant in occlusal plane accurately on dental chair. This study utilizes a fox plane, android phone and an android application which is taken from play store called clinometer (plaincode™). This application uses gyroscope and accelerometer sensor to help us measure inclines and declines in three dimensions. This simple, cost effective and easily accessible device will help in determining the cant and steepness in occlusal plane accurately.

Keywords: Cant, Diagnosis of occlusal cant, Occlusal plane.

Introduction

Smile analysis and smile design is one of the important aspects in orthodontics. Canted plane is one of the major causes of unaesthetic smile and it creates a total challenge

to orthodontist. Occlusal cant is frequently related to facial asymmetries due to hereditary, developmental anomalies, environmental trauma, jaw cyst etc¹. Evaluation of occlusal cant is highly challenging, and its accuracy is always questionable. Conventionally, ala tragal line is used as a guide for assessment of occlusal plane and a fox plane is used to check the parallelism within the arch². Previous methods used such as microfocus X-Ray CT, 3D stereophotogrammetric imaging^{3,4} are expensive and time consuming. So, our aim of the study is to develop a simple, cost-effective device to check the horizontal and antero-posterior cant in the occlusal plane accurately on dental chair.

Technique

This study utilizes a fox plane, android phone and an android application which is taken from play store called clinometer (plaincodeTM). This application uses gyroscope and accelerometer sensor to help us measure inclines (positive slopes) and declines (negative slopes) using three different units of measure: degrees, percent and topo. Fox plane (Dr Frank Fox) consists of an intra oral part and two extraoral arms which helps to check the parallelism between occlusal rims.

Methodology

Patient is asked to sit upright on a dental chair and made sure that F-H plane is parallel to the floor. To ensure natural head position ask the patient to look forward and gaze into his reflection of eye in the mirror. Fox plane is inserted into the patient's mouth and asked to bite forcefully (Fig:1). An android phone with clinometer app is placed on the extra oral arm in a horizontal manner, which will accurately tell the cant in the occlusal plane three dimensionally (Fig:2).



Figure 1

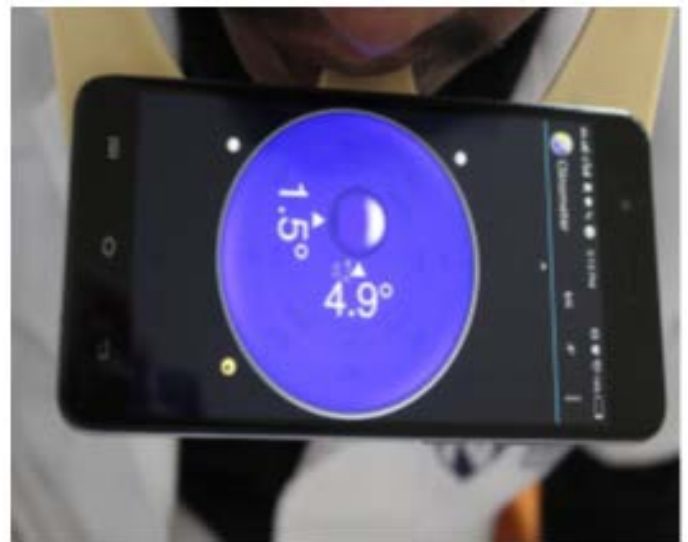


Figure 2

Conclusion

To obtain a satisfactory result of orthodontic treatment it is important to identify and rectify cant in occlusal plane. So, this simple, cost effective and easily accessible device will help in determining the cant and steepness in occlusal plane accurately.

References

1. Senisik N E, HasipekS .: occlusal cant: etiology, evaluation, and management: Turkish J Orthod. 27(4):174-180,2015.

2. Sadr K, Sadr M.: A study of parallelism of the occlusal plane and Ala-Tragus line: J Dent Res Dent Clin Dent Prospect.3(4):107-109,2009.
3. Kamegawa M, Nakamura M, Tsutsumi S.: 3D morphological measurements of dental casts with occlusal relationship using Microfocus X-ray CT: Dent Mater J. 27(4):549-554,2008.
4. Rosati R, Rossetti A, Menezes M D, Ferrario V F, Sforza C.:The occlusal plane in the facial context: inter-operator repeatability of a new three-dimensional method.: Int J Oral Sci. 4(1):34-37,2012.
5. Suhudy F.: Cant of the occlusal plane and axial inclination of the teeth: Angle Orthod. 33:69-82,1963