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**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3234079>Available online at: <http://www.iajps.com>**Research Article****ANALYSIS OF CURVE OF SPEE AMONG PATIENTS SEEKING
ORTHODONTIC TREATMENT****¹Dr Syed Muhammad Aun Raza, ²Dr Wajeaha Hanif, ³Dr Saud Ahmed Cheema**¹Dental Surgeon at RHC Donga Bonga, Bahawalnagar²Punjab Medical College, Faisalabad³Punjab Dental Hospital, Lahore**Article Received:** March 2019**Accepted:** April 2019**Published:** May 2019**Abstract:**

Introduction: Curve of Spee is a naturally occurring phenomenon in the human dentition. This normal occlusal curvature is required for an efficient masticatory system. **Objectives of the study:** The purpose of this study was to analyse the curve of spee among patients seeking orthodontic treatment. **Material and methods:** This analytical study was conducted in December 2018 to February 2019 at Punjab dental hospital, Lahore and Punjab medical college, Faisalabad. The data was collected from 50 patients who were done with orthodontics treatment in the hospitals. The data was collected through a non-probability sampling technique. After clinical examination for evaluating criteria patients were enrolled for the study. Lateral cephalogram was recorded, taken in centric relation, surveyed and classified by observation into the three categories of vertical relationships as normal angle, high angle and low angle. **Results:** The data was collected from 50 patients of orthodontics treatment. T-test was applied to all the values for finding the depth of curve of spee. The depth of curve for high angle, normal angle and low angle was 2.34, 2.51 and 1.97 respectively. The mean over jet value for high angle was 1.9mm and for low angle was 1.6mm. **Conclusion:** It is concluded that there is a significant correlation between curve of Spee, over-bite and overjet. Value of angle of spee was high among normal angle group as compared to low and high.

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INTRODUCTION:

Curve of Spee is a naturally occurring phenomenon in the human dentition. This normal occlusal curvature is required for an efficient masticatory system. Exaggerated curve of Spee is frequently observed in dental malocclusions with deep overbites. Such excessive curve of Spee alters the muscle imbalance, ultimately leading to improper functional occlusion. Orthodontists eventually deal with the curve of Spee in virtually every patient they treat [1].

The curve of Spee was first described by F Graf Von Spee in 1890, who used skulls with abraded teeth to define a line of occlusion. This line lies on a cylinder that is tangent to the anterior border of the condyle, the occlusal surface of the second molar, and the incisal edges of the mandibular incisors [2]. Spee located the center of this cylinder in the midorbital plane and hence that it had a radius of 6.5–7.0 cm. The functional significance of the curvature has not been completely understood. However, it has been suggested that the curve of Spee has a biomechanical function during food processing by increasing the crush-shear ratio between the posterior teeth and the efficiency of occlusal forces during mastication [3].

Leveling of the curve of Spee represents a routine procedure in orthodontic practice. The deviation of the occlusal plane from a flat plane has practical consequences when considering the arch circumference requirements necessary to flatten the curve. In disputably, a curved arch has a greater circumference than a flat arch [4]. However, the amount of additional arch circumference required to flatten the curve is not as apparent. A popular theory is that 1 mm of arch circumference is needed to level each millimeter of the curve of Spee. Yet, Germane *et al.*, found that less 1 mm of arch circumference is required to level each millimeter of the curve of Spee [5]. According to Woods, the amount needed is variable depending on the type of mechanics used. Later on, the curve of Spee and/or leveling of this has related to incisor over-bite and lower arch circumference. A deep curve of Spee is usually associated with an increased over-bite. Orthodontic

correction of the over-bite often involves leveling the curve of Spee by anterior intrusion, posterior extrusion or a combination of these actions [6].

Objectives of the study

The purpose of this study was to analyse the curve of spee among patients seeking orthodontic treatment.

MATERIAL AND METHODS:

This analytical study was conducted in December 2018 to February 2019 at Punjab dental hospital, Lahore and Punjab medical college, Faisalabad. The data was collected from 50 patients who were done with orthodontics treatment in the hospitals. The data was collected through a non-probability sampling technique. After clinical examination for evaluating criteria patients were enrolled for the study. Lateral cephalogram was recorded, taken in centric relation, surveyed and classified by observation into the three categories of vertical relationships as normal angle, high angle and low angle. The measurements were recorded on a predesigned Proforma. The study was done to determine mean of radius of curve of spee in different vertical pattern.

Statistical analysis

All the values were expressed in mean and standard deviation. T-test was used for the descriptive statistics of values and data.

RESULTS:

The data was collected from 50 patients of orthodontics treatment. T-test was applied to all the values for finding the depth of curve of spee. The depth of curve for high angle, normal angle and low angle was 2.34, 2.51 and 1.97 respectively. The mean over jet value for high angle was 1.9mm and for low angle was 1.6mm. All the data is presented in table 01.

Table 01: Analysis of curve of spee among 50 patients

	High angle	Normal angle	Low angle
No. of patients	10	20	20
Depth of curve of spee	2.34	2.51	1.97
Mean overjet (mm)	1.9	1.7	1.6
Mean overbite (mm)	2.3	3.9	1.98

DISCUSSION:

The finding of the study showed that curve of spee was present at highest level in normal angle class. The curve of Spee is an important guideline in prosthetic management of a patient as it determines the position of the tooth in the sagittal plane. From the result of this study, it is clear that the curve is deeper in class II cases while it is flatter in class III cases [7]. This study is in correlation with Orthlieb's finding that the radius of the curve of Spee is less in class II cases while it is more in class III occlusion. Thus, it has a direct relation with the antero-posterior position of maxilla and mandible [8]. Furthermore, curve of Spee is directly proportional to the overjet and over-bite of an individual. In prosthodontic management of full mouth rehabilitation cases, it is necessary to maintain the curve of Spee at an ideal depth which will determine the incisal guidance [9].

Different methods have been advocated by different researchers regarding its measurement. Baldrige used the perpendicular distances from all teeth to the occlusal plane on both sides while Sondhi et al employed the same method but for right side only [10]. Bishara et al measured the COS as the average of the sum of the perpendicular distances to each cusp tip. Braun et al [17] used the sum of right and left side maximum depth while Marshall et al employed the same with the difference being average of the sum of maximum depth of both sides. In our study we measured COS as advocated by Veli et al and Marshall et al [11].

CONCLUSION:

It is concluded that there is a significant correlation between curve of Spee, over-bite and overjet. Value of angle of spee was high among normal angle group as compared to low and high.

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