

***Orthodontic Considerations of
Functional Occlusion in Class I
Normal Occlusion***

***A thesis
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Abstract

The therapeutic goal of orthodontic treatment is to establish ideal occlusion which includes both static and functional aspects. Optimal static occlusion criteria can be simply identified and achieved by orthodontist, in contrast to functional occlusion criteria.

The aim of the present study was how to achieve the functional occlusion treatment goals through the identification of the characteristics for each type of functional occlusion.

The sample of the present study consisted of 62 subjects (20 males, 42 females) with normal occlusion and with an age range of (18-25 years). After clinical examination, impressions were taken for each subject to produce dental casts, subject's occlusal plane relation to the temporomandibular joint were transferred to a fully-adjustable articulator (Stratos 300, Ivoclar Vivadent) with the aid of universal transferbow system (UTS3D, Ivoclar Vivadent). Functional occlusal contacts during lateral excursion were identified on a fully adjustable articulator, and then the sample was classified according to:

- 1) Type of functional occlusion into: A) Canine protected occlusion group (22 subjects) 'canine protected occlusion on both working sides'. B) Group function occlusion group (22 subjects) 'group function occlusion on both working sides'. C) Mixed functional occlusion group (18 subjects) 'canine protected occlusion on one side and group function occlusion on the other side'.
- 2) Working side contact into: Canine protected occlusion (62 sides) and group function occlusion (62 sides).

Results revealed that vertical canine overlap, position of maxillary canine and 1st molar mesiobuccal cusp tip to the center of opposing embrasure/groove, and arch form analysis had significant difference between groups. Adding to that, some of the maxillary and mandibular teeth were significantly differed between groups in regard to crown angulation and inclination. While curve of Spee, tooth size analysis,

and difference between maxillary and mandibular inter-canine distance were not. So it was concluded that the vertical canine overlap, position of maxillary canine and 1st molar mesiobuccal cusp tip to the center of the opposing embrasure/groove, arch form harmony were important functional aspects of orthodontic treatment goals. Furthermore, the case should be finished to canine protected occlusion, so that the posterior teeth kept out of contact during lateral excursion to reduce interferences, minimize orthodontic relapse, and prevent occlusal pathologies.