

***THE EFFECT OF DIFFERENT OCCLUSAL
SCHEMES ON THE ELECTROMYOGRAPHIC
ACTIVITY AND MASTICATORY
EFFICIENCY IN COMPLETE DENTURE
WEARERS***

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Summary

This study was performed on completely edentulous patients to evaluate the effect of different occlusal schemes (bilateral balanced occlusion, lingualized occlusion, canine guidance occlusion and monoplane occlusion) on the electromyographic activity and masticatory efficiency.

Each patient received denture with one occlusal scheme and followed up for a three months. Then the posterior segments of both maxillary and mandibular denture was exchanged to develop the other occlusal scheme on the same denture base.

The Electromyography (EMG) for the masseter and temporalis muscles during clenching in intercupal position and during chewing of carrot, peanut and apple and the masticatory efficiency were evaluated for each occlusal scheme every three months.

The results of this study showed that:

-The highest EMG activity of masseter muscle during clenching at the intercuspal position for all occlusal schemes except the monoplane occlusion.

-There was insignificant difference in EMG activity of masseter muscle during clenching at the intercuspal position among the four occlusal schemes.

-There were significant differences in EMG activity of temporalis muscle during clenching at the intercuspal position among the four occlusal schemes.

-During grinding carrot, peanut and apple the EMG muscle activity showed significant reduction in magnitude in bilateral balanced scheme, canine guidance occlusal scheme, and the lingualised occlusal scheme compared with monoplane occlusal scheme.

- There was a significant increase in EMG activity of masseter and temporalis muscles during grinding carrot, peanut and apple in bilateral balanced occlusal when compared with the canine guidance occlusal scheme.

- There was a significant increase in EMG activity of masseter and temporalis muscles during grinding carrot, peanut and apple in bilateral balanced occlusal when compared with the lingualized occlusal scheme.

- There was insignificant difference during grinding carrot, peanut and apple in the EMG activity of masseter and temporalis muscles between lingualised occlusal scheme and canine guidance occlusal scheme.

-The results of the present study showed no statistically significant difference in masticatory efficiency among the bilateral balanced occlusion, lingualized occlusion and canine guidance occlusion

-The results of the present study showed statistically significant reduction in masticatory efficiency in monoplane occlusion when compared with the bilateral balanced occlusion, lingualized occlusion and canine guidance occlusion.

Conclusions:

Within limitation of this study the following conclusions were obtained.

1- The monoplane occlusion is the last choice occlusal scheme for complete denture because it showed the least masticatory efficiency and the highest EMG muscle activity for both temporalis and masseter muscles.

2- Although there was no significant differences in the masticatory efficiency between bilateral balanced occlusion and lingualized balanced occlusal scheme, the lingualized occlusion is preferred because it showed a lesser EMG muscle activity.

3- In spite of the canine guidance is a non-balanced occlusion, it is advocated in complete denture because its higher masticatory efficiency and lower EMG activity for both temporalis and masseter muscles.