

# Korelasi aktivitas otot mastikasi dengan kemampuan mastikasi pada pemakai gigi tiruan penuh canine guidance dan balance occlusion = Correlation between masticatory muscle activity and masticatory ability in complete denture wearers with canine guidance and balanced occlusion concept

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## Abstrak

Latar belakang : Konsep balanced occlusion umum digunakan pada pembuatan GTP, namun konsep canine guidance menawarkan proses yang sederhana dan mengurangi resorpsi alveolar ridge. Diperlukan penelitian mengenai perbandingan kedua konsep oklusi ini di Indonesia.

Tujuan : Menganalisis efektivitas konsep canine guidance dibandingkan balanced occlusion pada pemakai gigi tiruan penuh (GTP).

Metode : Sepuluh pemakai GTP berpartisipasi dalam uji klinis dengan desain menyilang, lima subjek dipilih acak untuk memakai GTP balanced occlusion kemudian canine guidance dan lima yang lain memakai GTP canine guidance kemudian balanced occlusion. Pengukuran dilakukan tiga puluh hari setelah pemakaian setiap konsep oklusi. Aktivitas elektromiograf otot masseter superfisialis dan temporalis anterior subjek direkam dengan alat EMG, dan subjek mengisi kuesioner kemampuan mastikasi.

Hasil : Rerata antara aktivitas EMG otot masseter superfisialis dan otot temporalis anterior pada pemakaian GTP canine guidance berbeda bermakna ( $p < 0,05$ ) dengan balanced occlusion. Rerata antara skor kuesioner kemampuan mastikasi pada pemakaian GTP canine guidance berbeda bermakna ( $p=0,046$ ) dengan balanced occlusion. Terdapat korelasi yang bermakna ( $p = 0,045$ ) dan kuat ( $r=0,642$ ) antara aktivitas EMG otot temporalis anterior dengan skor kuesioner kemampuan mastikasi saat pemakaian GTP balanced occlusion dan antara aktivitas EMG otot masseter superfisialis dengan skor kuesioner kemampuan mastikasi ( $p=0,045$  ;  $r=0,648$ ) saat pemakaian GTP canine guidance.

Kesimpulan : Aktivitas otot mastikasi saat memakai GTP canine guidance lebih rendah signifikan secara klinis dan berbeda bermakna secara statistik dengan balanced occlusion. Kemampuan mastikasi secara subjektif juga lebih baik saat memakai GTP canine guidance.

**Background** : Balanced occlusion commonly used in complete denture fabrication, however, canine guidance offers a simple process and reduce alveolar ridge resorption. Comparative study of these two concepts occlusion is required in Indonesia.

**Objective**: To analyze the effectiveness of canine guidance to the balanced occlusion in complete denture wearers.

**Methods**: Ten denture wearers participating in cross-over clinical trials, five subject randomly selected to wear balanced occlusion followed by canine guidance, five others wearing canine guidance followed by balanced occlusion. Outcomes were measured after 30 days of each occlusal scheme. Elektromiograf activities of superficial masseter muscle and anterior temporal muscle were recorded, participants also answered a masticatory ability questionnaire.

**Results**: There are significant differences between the EMG activity of superficial masseter muscle and the anterior temporal muscle canine guidance on canine guidance wearers and balance occlusion ( $p < 0.05$ ).

Patients rated their masticatory ability significantly better for the canine guidance denture ( $p = 0.046$ ). There are significant and strong correlation ( $p = 0.045$  ;  $r = 0.642$ ) between the EMG activity of anterior temporal muscle and masticatory ability upon wearing balanced occlusion denture, and also between the superficial EMG activity of superficial masseter muscle and masticatory ability ( $p = 0.043$ ;  $r = 0.648$ ) upon wearing canine guidance denture.

Conclusion: EMG activity of masticatory muscles upon wearing canine guidance denture are clinically and statistically lower to balanced occlusion. Masticatory ability are also better when using canine guidance denture according to the patients.