

# Relation Between EMG Signal Activation and Time Lags Using Feature Analysis During Dynamic Contraction

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## ABSTRACT

This study examined the effects of electromyographic (EMG) signals from Biceps Brachii (BB) muscle on the root mean square (RMS)-time relationships during dynamic contraction. Ten healthy and right hand dominated male subjects were volunteered for the experiments. The RMS features were extracted from the corresponding EMG signals (amplitude of the full wave EMG) for 10 seconds in 5 minutes intervals between each trial. Ten seconds (or 10000 ms) were divided into 4 time lags to identify the muscle activity and relationship between EMG and time using different statistical analysing techniques, such as mean, regression analysis, correlation, ANOVA, and coefficient of variation (CoV) for muscle activity variation. The results shows that large positive linear association between EMG and endurance time where the points are close to the linear trend line (R squared = 0.93 and F-ratio = 453.1). Signal steadiness is better during last time lags (1.66% during 7501–10000 ms) compared to initial time duration (10.35% during 0–2500 ms).

**KEYWORDS:** EMG; RMS; Biceps brachii; Feture; Signal

**DOI:** [10.1109/ICAICTA.2015.7335359](https://doi.org/10.1109/ICAICTA.2015.7335359)