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Volume 14, Issue 2, May 2019, Pages 608-617Investigation of lower limb's muscles activity during performance of salat between two age groups (Article) [\(Open Access\)](#)Abdul Malik, N. [✉](#), Wahid, Z., Zulkipili, A.F., Ibrahim, S.N., Gunawan, T.S., Khan, S. [👤](#)

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Abstract

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Muscles play an important role in the movement of limbs. They undergo contraction to straighten or to bend a joint for the limbs to move. There are many factors that can affect muscle activity. Age could be one of the possible factors affecting muscle activity. The purpose of this study was to investigate the lower limb's muscles activity during performance of salat between two age groups. The lower limb's muscles investigated were Gastrocnemius (GAS), Biceps Femoris (BF), Tibialis Anterior (TA) and Rectus Femoris (RF). The postures involve are standing, bowing, prostrating and sitting. The electromyography (EMG) signals of the muscles were measured using the technique of surface EMG (sEMG). The signals were acquired by using Delsys Bagnoli™ Desktop sEMG system and EMGworks®. Ten healthy subjects from two age groups were recruited in this study. The first group consists of five males aged between 20 to 29 while the second group consists of five males aged above 40. The raw EMG signals acquired were analyzed and the EMG envelopes were developed using MATLAB. The averaged RMS values of EMG for each muscle were also calculated. Analysis of variance (ANOVA) of the EMGs was obtained by using F-test. Further investigation of the variance was performed by using Tukey comparison. From the results, the most active muscle during the performance of salat is BF while the less active muscle is GAS for both age groups. The statistical result show that there is no difference in the muscle activity pattern between the two age groups but there is significant difference among the muscles investigated. © 2019 Institute of Advanced Engineering and Science. All rights reserved.

SciVal Topic Prominence [ⓘ](#)

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