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 Indonesian Journal of Electrical Engineering and Computer Science
 Volume 14, Issue 2, May 2018, Pages 608-617

Investigation of lower limb's muscles activity during performance of salat between two age groups (Article) [\(Open Access\)](#)

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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.

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Topic: Islam | Muscle | C lines

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Author keywords

[Age groups](#)
[Electromyography \(EMG\)](#)
[Lower limb](#)
[Muscle activity](#)
[Postures](#)
[Salat](#)

Funding details

Funding sponsor	Funding number	Acronym
Ministry of Higher Education, Malaysia	FRGS16-067-0566	MOHE

Funding text

The authors would like to acknowledge the Ministry of Higher Education Malaysia (MOHE) for funding this research project through Fundamentals Research Grant Scheme (FRGS) [Ref.:FRGS16-067-0566].

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 Khanam, F. , Islam, S. , Rahman,
M.A.
(2015) *2nd International
Conference on Electrical
Engineering and Information and
Communication Technology,
iCEEICT 2015*

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(Salat)

 Rabbi, M.F. , Wahidah Arshad, N.
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-
- 1 Reza, M.F., Urakami, Y., Mano, Y.
Evaluation of a new physical exercise taken from salat (prayer) as a short-duration and frequent physical activity in the rehabilitation of geriatric and disabled patients

(2002) *Annals of Saudi Medicine*, 22 (3-4), pp. 177-180. Cited 28 times.
<http://www.annsaudimed.net/index.php/past>
doi: 10.5144/0256-4947.2002.177

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-
- 2 Doufesh, H., Ibrahim, F., Ismail, N.A., Wan Ahmad, W.A.
Assessment of heart rates and blood pressure in different Salat positions

(2013) *Journal of Physical Therapy Science*, 25 (2), pp. 211-214. Cited 4 times.
https://www.jstage.jst.go.jp/article/jpts/25/2/25_JPTS-2012-323/_pdf
doi: 10.1589/jpts.25.211

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-
- 3 AlAbdulwahab, S.S., Kachanathu, S.J., Oluseye, K.
Physical activity associated with prayer regimes improves standing dynamic balance of healthy people ([Open Access](#))

(2013) *Journal of Physical Therapy Science*, 25 (12), pp. 1565-1568. Cited 7 times.
https://www.jstage.jst.go.jp/article/jpts/25/12/25_jpts-2013-179/_pdf
doi: 10.1589/jpts.25.1565

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-
- 4 Safee, M.K., Abas, W.W., Osman, N.A., Ibrahim, F.
Electromyographic Activity of the Medial Gastrocnemius and Lateral Gastrocnemius Muscle during Salat's and Specific Exercise
(2013) *Lateral*, 57, p. 86.
Jun 27
-
- 5 Mk, M.S., Ibrahim, F., Na, A.O.
Electromyography activity of the rectus femoris and biceps femoris muscles during prostration and squat exercise
(2015) *World Academy of Science, Engineering and Technology, International Journal of Medical, Health, Biomedical, Bioengineering and Pharmaceutical Engineering*, 8 (12), pp. 860-863. Cited 2 times.
NA AM, Jan 1
-
- 6 Ibrahim, F., Ahmad, S.A.
Assessment of upper body muscle activity during salat and stretching exercise: A pilot study

(2012) *Proceedings - IEEE-EMBS International Conference on Biomedical and Health Informatics: Global Grand Challenge of Health Informatics, BHI 2012*, art. no. 6211603, pp. 412-415. Cited 5 times.
ISBN: 978-145772177-9
doi: 10.1109/BHI.2012.6211603

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-