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# بسم الله الرحمن الرحيم


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# التوثيق الالكتروني والميكروفيلم

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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

# قسم

## نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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# بالرسالة صفحات لم ترد بالأصل

# Computer Mouse Position as a Determinant of Posture and Muscular Load in Normal Subjects

By

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## DEDICATION

To ***My parents,*** who gave every thing to me. To ***My husband,*** for his sacrifices and continuous help. For the precious time ***my brother*** spent with me. To *My lovely girl,* ***Raneem,*** *and my sweat boy,* ***Mohammed,*** the best gift of **Allah.** For every one of my family and my friends who gave me support. To the soul of every Moslem scarified his life to support **ISLAM.**

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# Abstract

**Background** Computer mouse become an integral part of office work. The number of studies examined the impact of mouse use on musculoskeletal health is limited. **The purpose** of this study was to compare kinematics of the right upper extremity and the electromyographic activities of upper, lower trapezii, and anterior deltoid muscles in two different computer mouse positions. **Subjects:** Thirty subjects (15 males, and 15 females), mean age was (22.16±10.92). They were assigned in one group. They assumed one position for fifteen minutes (The traditional one) and then take a recording. After that they assumed the second position (The modified one) for other 15 minutes and take other recording. The recording includes, EMG registered from each selected muscle and capturing of the subject's posture by Infrared cameras. **Results:** There was a statistically significant decrease in the right upper extremities angles in the modified position except for the wrist ulnar deviation which increase significantly in this position. There was also significant decrease in muscular activities in this position except for lower trapezius. Positive correlation in this position between upper trapezius and shoulder abduction was found. **Discussion and conclusion:** Modified mouse position decreased most upper extremity angles and the muscular load over the upper, lower trapezius and anterior deltoid muscles and so it is recommended to be used in computer workstations in different fields.

**Keywords:** Computer mouse, Ergonomics, EMG, Three-dimensional analysis of motion.

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