



Faculty of Engineering
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**STUDY THE FACTORS AFFECTING THE
ERGONOMIC DESIGN OF SEWING WORK
STATION IN GARMENT MILLS**

A thesis submitted in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

In

Textile Engineering

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2018

ABSTRACT

The garment industry is one of the largest strategic industries in developing countries. Therefore, it should work in order to develop this industry.

Many health problems reported by the garment operators in general, and the sewing section operators in particular, due to the sewing task characteristics as a prolonged sitting task, while the operator performing a precision sewing process relatively fast.

In order to reduce the operator's musculoskeletal injury complains, and increase the productivity as well as they improve the quality, many researchers' suggestions have been studies, to redesign an ergonomic sewing workstation, provide more comfort for the operators in order to reduce the MSDs complains.

A lack in the previous studies have been found, in order to links between the operator's anthropometric body dimensions, and the type of the sewing machine used by the operators in determining the sewing workstation dimension and setting.

Therefore, the main objective of this research study a various workstation setting as well as the operator's anthropometric body dimensions, in order to ergonomically re-design the sewing machine workstations to reduce the sewing operators' MSDs complain and increase the productivity rate. It has determined four workstation setting factors, three factors related to the sewing workstation height and inclination angles, with three levels for each factor, on two machine types (lock and chain stitch). One factor was carried by operators BMI, with three different levels (normal, overweight and obese), in order to; -

- Find the correlation between the sewing operators' sitting posture angles in the kinematic stage, and their anthropometric measurements.
- Produce a significant regression equation till a second-degree relation, for the four workstation studying factors

The results show a significant relationship between the operators' anthropometric body measurements data (eye height in the setting position I, and the operators' BMI) in the operator sitting position during performing the sewing task.

High correlations between the four studying workstation factors and the best interactions between the variables. As a knowledge-based, ergonomic sewing machine workstation design guideline was produced in form of second degrees regression equations, will be extracted to provide inspirations and references.