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## Design of Work Place and Ergonomics in Garment Enterprises

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### Abstract

Work life quality can be evaluated scientifically by considering into account all the factors effecting directly or indirectly the working of the humanly. For system approach, beside the method used during the work; work place planning, design of all the production tools and devices, physical and psycho-social environment are the factors effecting work satisfaction. Beside the physical factors such as noise, lighting, harmful gases and dust, vibrations etc, all kind of psycho-social factors have to be evaluated scientifically. Authorities must know that some recovers based on the experience and common sense may have only limited contribution in scientifically design of the work place. It was tried to evaluate in this study, the work place environments of the business in İstanbul, Bursa and Çorum. It was presented some suggestions underlining their appropriate and won appropriate sides under our evaluation.

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### 1. Introduction

The garment sector is a sector that plays an important role in the economic development process of countries. The garment sector which contributed significantly to the process of industrialization realized in the 18th century by developed countries also plays a similar role in the economic development of the developing countries today. The acceleration created by the garment sector in the Turkish foreign trade and its contribution to the economy has brought this sector as Turkey's "Leading Sector" and it has continued to be referred to with this adjective until recent years.

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The business area created by the sector with these features and its contribution to the employment are huge. To organize workplace environment and design it ergonomically is also an important issue, particularly in the garment sector with this volume. When determining the volumetric and formal components of the business system in terms of anthropometric aspects, in terms of work physiology, the bodily functions with which the job is done in the best way are also determined. To ensure that, it is necessary to know the employee's personal characteristics on one hand and the shape, hardship, time of the job and environmental conditions on the other hand. Work arrangement with the least difficulty in doing work of the same quality is a successful arrangement. This can only be achieved with ergonomic solutions. These results can be achieved thanks to the arrangements such as eliminating or reducing static muscle work, less force application, choosing the right directions to apply force, changing the work from time to time and, if necessary, giving breaks calculated correctly. As a basic principle, the work and workplace should be arranged so that the employee can be work with maximum efficiency [1,2].

When arranging the workplace work processes and interaction between the work and the human should be taken into consideration, the sum of these relations and the rules constitute the ergonomic rules. A workplace arranged in accordance with the ergonomic rules is a prerequisite for the humane and economical use [3] of the labor. If the workplace is able to be arranged rapidly with the required quality and at low cost so that the production can be done by forcing the employee in a way not to exceed his/her performance limits and ensuring the work safety, two main objectives of the ergonomics which are humane working and economic performance would be achieved.

Workstations and their environments which cause pain especially in wrists, arms, neck and back depending on the type of work performed and in which sufficient improvement activities have not carried out yet in terms of employee's health negatively affect employee productivity and create cost problems [4]. There are occupational health and safety risks in the garment sector such as noise, high temperature, tiring work, manual handling of chemicals, musculoskeletal disorders.

In addition to the risks relating to occupational health and safety mentioned above, other factors threatening the health are mentioned in the garment sector, such as heavy lifting and carrying, poor lighting, fire, movements causing repetitive accidents [5,6]. The formation of these factors can be reduced by simple arrangements and designing appropriate workplace environment.

Work locations are shaped under the influence of human characteristics, job requirements, and job design features. The better ergonomic needs of the individual are met at workplace, the higher their productivity will be and employee's health will be protected as well [7,8].

Because the human cannot be re-designed, machinery and other means of production should be designed so employees can use them easily. Admittedly, equipment and workplace design can make things easier or make it impossible to get things done. In the job design, care must be taken for the factors forming the work environment not to constrain the employees but relieve their work. This is possible by designing tools and environmental characteristics suitable for human features.

In this study, it was aimed at examining the work environments of garment enterprises in Istanbul, Bursa, and Corum provinces and evaluating these in terms of ergonomics.

## **2. Method**

The aim of this study is to evaluate the work environments of garment enterprises in Istanbul, Bursa and Çorum provinces in terms of ergonomics. The quality control, fabric cutting, warehouse and manufacturing departments of 10 different establishments, which are active in 2015, were observed and these departments were evaluated by taking their photos. In this context, ergonomically suitable and unsuitable features of working environments of these establishments were determined and suggestions were made.

## **3. Findings and Interpretation**

The images obtained from the garment enterprises in the survey are shown in Fig. 1-2-3.

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