

Ergonomic design of industrial chair

Zahra Sharifi¹, Reza Osqueizadeh^{2*}, Seyed Farhad Tabatabai Ghomshe³

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Abstract

Introduction: Job satisfaction and productivity among industrial workforce depend on multiple factors. Among these factors, designing the workstation based on bodily characteristics and dimensions of the workers is of critical significance. Since industrial chairs have direct impacts on biomechanical and anthropometric compatibility, they play a major role in enhancing workers' interaction with their workplace. The current study approached the redesign of such a product with a focus on ergonomics.

Materials and Methods: The present research was a typical combined design project. In the quantitative phase, 90 participants underwent 12 anthropometric measurements (which were important in designing industrial chairs). The underlying cognitive aspects of the question were evaluated via qualitative methodologies.

Results: Since normal distribution of the data was confirmed, raw anthropometric data were descriptively processed and reported. Cognitive assessments revealed correlations between correct form and softness of the backrest, and appropriate slope of the seat-pan, being a main factor determining the level of comfort while interacting with industrial chairs.

Conclusion: Diverse physical constraints and conditions caused by the variety of duties and workstations have made it somehow difficult for specialists to design a universal industrial chair functioning in all different contexts. Nevertheless, the current study confirmed the effectiveness of involving personnel in redesigning the workplace and easing the challenges.

Keywords: Ergonomics, Industrial chair, Design, Anthropometrics.

1. M.Sc. in Ergonomics, Department of Ergonomics, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran.

2*.(Corresponding Author) Lecturer in Ergonomics, Department of Ergonomics, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran. Email: Reza_o@yahoo.com

3. Associate Professor, Department of Ergonomics, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran.