



Ergonomic Tool Design Must Be in Accordance with the Anthropometric Dimensions of the User's Workforce

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Abstrak: *If a tool is not suitable for the user and is forced, the user will become tired easily and productivity will not be good. Ergonomic tools are devices specifically designed to adapt to the abilities, limitations, and dimensions of the body. This article is designed descriptively, namely it will be compared and explained. All data in this article is derived from expert opinions and research findings, commonly referred to as literature studies. Furthermore, the analysis also uses descriptive methods. Conclusion: that in designing work equipment it is best to know the work position, then the employee's anthropometric data as equipment size data, and finally it can reduce fatigue and improve work productivity. Suggestion: companies should design work equipment that is adapted to the anthropometry of employees so that it is ergonomic.*

Keywords: *Ergonomic Design, Anthropometric Dimensions, Users*



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INTRODUCTION

Many tools don't fit the user, which is unergonomic. If a tool isn't the right fit and is forced, it can lead to fatigue and reduced productivity. Ergonomic tools are specifically designed to adapt to the abilities, limitations, and dimensions of the body.

Such as research from Meri Andriani et al (2016) that "research conducted in a cracker factory in Medan requires ergonomic equipment design". Then La Ode Muammad Fardhan Sabil Beasi et al (2025) that it is necessary "to design work tables and work chairs that are done to improve the working posture of workers in manual handling. This design is adjusted to the needs of workers so that it can reduce possible risks". Furthermore, according to August 2020 that "especially on the problem of operator complaints and work risks in the production area. Operator complaints are caused by non-ergonomic working posture conditions of operators. Good work facility design must be oriented towards humans as users, and consider the body dimensions or anthropometry of the operator to provide a sense of comfort and make it easier for operators to do their jobs".

Furthermore, tool design that is not based on anthropometry will result in musculoskeletal complaints and fatigue. This is as I Gede Bawa Susana et al. (2022) stated that "ergonomic interventions to design or redesign work tools based on workers'

anthropometric data can reduce musculoskeletal complaints and fatigue." According to Siti Ruqaiyah Baharuddin (2025), "the application of ergonomic principles has been proven to reduce the risk of work injuries such as musculoskeletal disorders."

Therefore, so that workers do not get tired easily while working, so that work tools or equipment must be designed to suit the anthropometric dimensions of the workforce. By working you don't get tired easily, then there will be optimal productivity and avoid accidents.

METHODOLOGY

This article is designed descriptively. This means that this article will be compared and will be presented. All data in the article is obtained from several expert opinions and from research results, or what is currently known as literature studies. Then, the analysis also uses descriptive. And, deductive conclusion.

ANALYSIS AND DISCUSSION

Ergonomic Tool Design and Anthropometric Dimensions

In tool design, anthropometric data is used so that the shape and size of the tool are appropriate or fit the body. For example, to design a chair, according to Rony Prabowo et al. (2019) that "the design of anthropometric measuring tools is designed to consider the selection of more durable, dynamic materials and emphasizes more accurate measurement results by designing the chair so that it can be moved up and down according to the dimensions of the human body ". Even using a non-ergonomic chair will feel uncomfortable sitting and not protected from various diseases and various complaints. This is as stated by Elisabeth Y. Manek (2025) that "employees of the Belu Regency Health Office need to be improved as an effort to provide work facilities, especially the provision of chairs that meet occupational health anthropometric standards so that employees when working in a sitting position feel comfortable and can be protected from various diseases and complaints due to non-ergonomic chairs ".

Ergonomic interventions in tool design will reduce musculoskeletal disorders and fatigue and increase productivity. This is consistent with research by I Gede Bawa Susana et al. (2022) that "ergonomic interventions to design or redesign work tools based on worker anthropometric data can reduce musculoskeletal disorders and fatigue, reduce risks in physical work, and increase productivity."

Ergonomics and Design Work Positions

Ergonomic work design is about healthy, safe, and secure working positions, ultimately leading to good productivity. Work positions can be seated or standing. Therefore, ergonomic design must consider anthropometry, as stated by Vitri Lestari (2020), who stated that "redesigning ergonomic equipment must be adjusted to employee anthropometric calculations."

CONCLUSION

By paying attention to the analysis and discussion above, it can be concluded that in designing work equipment, it is best to know the work position, then the employee's

anthropometric data as equipment size data, and finally it can reduce fatigue and improve work productivity.

SUGGESTION

When designing work equipment, companies should adapt it to the anthropometry of employees so that it is ergonomic.

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