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An Ergonomic Work Space to Boost Productivity

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A B S T R A C T
In creating an office space, it needs to be designed ergonomically. With an ergonomically designed office, the workforce working in the office will feel safe, comfortable, free from injury and work productivity will increase. This paper is designed descriptively. All data is taken from expert opinions and research results, or this method is usually called a literature study. Furthermore, the analysis and discussion also use descriptive or exposition. Conclusion: 1) Ergonomic office space is equipment capable of maintaining correct body posture, the correct selection of chairs and tables, proper lighting, can rest and get enough physical activity. 2) By implementing ergonomics in the office space, employees become healthy and work productivity will increase. Suggestion: It is recommended for entrepreneurs who have office space to design their offices ergonomically so that employees who work in the office are always healthy and productivity can increase.

INTRODUCTION

An ergonomically healthy workspace aims to adapt the work environment and human physical limitations to increase comfort, reduce risk and maximize productivity.

According to Derrell Jackson (2025) that "after reviewing 250 ergonomic case studies, the Washington State Department of Labor and Industry found an average reduction of 59% in musculoskeletal disorders". And, according to the International Labor Organization by Kevin Hizkia Dijen et al (2025) that "many cases of work injuries in the service sector are caused by poor and unethical work postures". Furthermore, Daffa Alya Radhawa T et al (2024) said that "implementing ergonomics effectively in the workplace should be a priority for every company that wants to grow".

The main danger of an unhealthy and non-ergonomic workspace is the increased risk of musculoskeletal disorders (MSDs). As stated by Tangguh Dwi Pamono et al. (2022), "unadjustable chair heights cause workers' body postures to become awkward while working, thus risking health problems such as work-related musculoskeletal disorders." And, according to Sadi (2019), "a macro ergonomic approach to the physical work environment can increase work productivity." This is in line with Heri Satria Setiawan (2017) who stated that "a more ergonomic design is expected to make workers feel safe, comfortable, and can increase worker productivity."

Therefore, office space needs to be designed ergonomically. An ergonomically designed office will ensure employees feel safe, secure, and avoid injury, increasing productivity.

An ergonomic workspace is an important factor in creating a healthy, safe, and productive working environment. In modern offices, employees spend long hours sitting in front of computers and performing repetitive activities that may lead to physical discomfort and health problems if the workplace is not properly designed. Therefore, the implementation of ergonomic principles in office design has become increasingly important for organizations that seek to improve employee well-being and organizational performance.

Ergonomics refers to the science of designing work systems, tools, and environments that fit human capabilities and limitations. The main objective of ergonomics is to create a balance between workers and their work environment to reduce the risk of injury, fatigue, and stress while improving comfort and efficiency. According to Derrell Jackson (2025), after reviewing 250 ergonomic case studies, the Washington State Department of Labor and Industry found an average reduction of 59% in musculoskeletal disorders after ergonomic improvements were implemented. This shows that ergonomic practices play a major role in protecting worker health and safety.

One of the most common problems caused by poor workplace ergonomics is musculoskeletal disorders (MSDs). These disorders affect muscles, joints, tendons, and nerves due to repetitive movements, awkward posture, and prolonged sitting. Employees who work in non-ergonomic environments often experience neck pain, back pain, eye strain, and fatigue, which can reduce work performance and increase absenteeism. Tangguh Dwi Pramono et al. (2022)

explained that work chairs that are not adjustable can force workers into uncomfortable positions, increasing the risk of musculoskeletal injuries.

In addition to physical health problems, poor office design can also affect employees psychologically. Uncomfortable workspaces, inadequate lighting, and limited movement can increase stress levels and reduce job satisfaction. Busyaro Hasab Najmi Hakim et al. (2024) stated that the implementation of ergonomic principles can support mental well-being by reducing stress and creating a healthier work atmosphere. As a result, employees become more motivated, focused, and productive in completing their tasks.

Proper ergonomic design includes several important aspects, such as maintaining correct body posture, selecting ergonomic chairs and desks, ensuring adequate lighting, providing sufficient workspace, and encouraging regular breaks and physical activity. Doni Morika (2021) emphasized that ergonomic workspaces should support natural body posture and reduce physical strain during work activities. In addition, proper lighting is necessary to prevent eye fatigue and Computer Vision Syndrome (CVS), especially for employees who frequently use digital devices.

The relationship between ergonomics and productivity has been discussed in many previous studies. Sadi (2019) explained that a macro ergonomic approach to the physical work environment can increase employee productivity. Similarly, M. Eky Krisandi Al Fiqih et al. (2025) found that effective ergonomic implementation can improve work efficiency, reduce musculoskeletal complaints, and decrease employee absenteeism. These findings indicate that ergonomics is not only beneficial for employee health but also contributes to organizational success and performance improvement.

Based on these conditions, creating an ergonomic office workspace is essential for every organization. A healthy and ergonomic workspace can help employees feel comfortable, safe, and motivated while working. Consequently, organizations can improve employee performance, productivity, and overall work quality. Therefore, this study aims to discuss the importance of ergonomic office workspaces and their role in improving employee health and work productivity.

LITERATURE REVIEW

Ergonomic Workspace

An ergonomic workspace is a work environment designed to match human physical capabilities and limitations in order to improve comfort, safety, health, and productivity. According to Ergonomics principles, workplace design should support proper body posture, reduce physical strain, and prevent work-related injuries. An ergonomic office includes appropriate furniture, proper lighting, sufficient workspace, and healthy work habits.

Doni Morika (2021) explained that creating an ergonomic workspace involves maintaining proper posture, selecting suitable desks and chairs, ensuring adequate lighting, and taking regular breaks combined with physical activity. Ergonomic chairs with lumbar support and adjustable height help workers maintain natural spinal alignment and reduce fatigue during prolonged

work activities. Meanwhile, proper lighting minimizes eye strain and prevents Computer Vision Syndrome (CVS), especially for employees who frequently use computers.

Ergonomics and Employee Health

The implementation of ergonomics in the workplace has a significant impact on employee health. Poor workspace design and improper working posture can increase the risk of musculoskeletal disorders (MSDs), such as back pain, neck pain, and shoulder strain. Tangguh Dwi Pramono et al. (2022) stated that chairs that are not adjustable may force workers into awkward body positions, increasing the risk of musculoskeletal problems. Similarly, the International Labour Organization reported that many workplace injuries in the service sector are caused by poor work posture.

In addition, Busyaro Hasab Najmi Hakim et al. (2024) emphasized that ergonomics not only improves physical health but also supports mental well-being by reducing stress and increasing job satisfaction. Regular rest periods and light stretching activities can help employees avoid stiffness and fatigue, contributing to healthier working conditions.

Ergonomics and Work Productivity

Ergonomics is closely related to work productivity because a comfortable and healthy work environment allows employees to work more efficiently and effectively. Sadi (2019) explained that a macro ergonomic approach to the physical work environment can increase productivity. Likewise, Heri Satria Setiawan (2017) stated that ergonomic workplace design helps workers feel safer and more comfortable, which positively affects productivity and work quality.

Research by M. Eky Krisandi Al Fiqih et al. (2025) found that effective ergonomic implementation can increase work efficiency by up to 30%, reduce musculoskeletal complaints by 40%, and lower absenteeism by 30%. Furthermore, Kemas Virga Zulkarnain (2026) stated that good ergonomic practices directly improve organizational productivity and the quality of work results. Therefore, ergonomic office design is considered an important strategy for creating a productive and healthy work environment.

Several previous studies have discussed the importance of ergonomics in improving employee health and work productivity. These studies generally show that ergonomic workplace design contributes positively to reducing workplace injuries, increasing comfort, and improving employee performance.

Sadi (2019) examined the influence of the physical work environment on productivity using a macro ergonomic approach. The study found that ergonomic improvements in the workplace environment significantly increased employee productivity and work efficiency. Meanwhile, Heri Satria Setiawan (2017) emphasized that ergonomic and anthropometric adjustments in workplace design help workers feel safer and more comfortable, resulting in better work quality and higher productivity.

Research conducted by Tangguh Dwi Pramono et al. (2022) focused on ergonomic risk assessment in office environments using the Rapid Office Strain Assessment (ROSA) method. The results showed that inappropriate office furniture and awkward body posture increased the risk of musculoskeletal disorders among office workers. This study highlighted the importance of adjustable office chairs and desks to support healthy working posture.

Furthermore, Busyaro Hasab Najmi Hakim et al. (2024) found that ergonomic workplace implementation not only improves physical health but also enhances employee mental well-being and job satisfaction. Similarly, M. Eky Krisandi Al Fiqih et al. (2025) concluded that effective ergonomic implementation could improve work efficiency, reduce musculoskeletal complaints, and decrease employee absenteeism.

Based on these previous studies, it can be concluded that ergonomics has a strong relationship with employee health, comfort, and productivity. Therefore, organizations should pay greater attention to ergonomic principles in designing office workspaces to create a safer, healthier, and more productive working environment.

METHODOLOGY

This paper is designed descriptively. All data is drawn from expert opinions and research findings, a method commonly referred to as a literature study. The subsequent analysis and discussion also utilize descriptive or expository methods. Conclusions are then drawn deductively.

This study employed a descriptive qualitative approach using a literature review method. The purpose of this method was to collect, analyze, and interpret various theories, expert opinions, and previous research findings related to ergonomic workspaces, employee health, and work productivity. Through this approach, the researcher aimed to provide a comprehensive understanding of the importance of ergonomics in office environments.

The data used in this study were secondary data obtained from books, scientific journals, articles, conference proceedings, and other relevant academic sources discussing ergonomics and workplace productivity. The literature sources included both national and international references published in recent years to ensure the relevance and accuracy of the information presented. Several previous studies related to ergonomic office design, musculoskeletal disorders, workplace comfort, and employee productivity were reviewed and analyzed systematically.

Data collection was conducted through documentation techniques by identifying and selecting literature relevant to the research topic. The researcher gathered references from credible academic publications and analyzed the information based on the objectives of the study. The collected data were then categorized into several discussion themes, including ergonomic workspace design, ergonomic standards, employee health, musculoskeletal disorders, workplace comfort, and productivity improvement.

The data analysis technique used in this study was descriptive analysis. The researcher described and interpreted the findings from various literature

sources to explain the relationship between ergonomic workspace implementation and employee productivity. The analysis process involved comparing theories and research findings from different experts to identify similarities, differences, and the overall impact of ergonomics on workplace performance and employee well-being.

Furthermore, the conclusions of this study were drawn deductively, meaning that the researcher developed conclusions based on general theories and previous findings related to ergonomics and then applied them to the context of office workspaces. This method allowed the researcher to explain how ergonomic office design contributes to creating a healthier, safer, and more productive work environment.

RESEARCH RESULTS AND DISCUSSION

Ergonomic Office

A healthy and ergonomic office aims to create comfort, reduce the risk of musculoskeletal injuries, and increase work productivity. According to Doni Morika (2021), steps to creating an ergonomic workspace include "maintaining proper posture, selecting the right chair and desk, appropriate lighting, and adequate rest and physical activity."

First, maintain proper posture. To create an ergonomic workspace, the first step is to focus on posture. Whether standing or sitting, proper posture can reduce the risk of injury. When sitting, ensure your chin is parallel to the floor, your shoulders are level, your spine is straight, and your knees and thighs are parallel to the floor. The ideal sitting position forms a 90-degree angle at the knees to maintain good blood circulation.

Second, choose an ergonomic desk and chair. To ensure an ergonomic workspace, ensure work furniture, such as desks and chairs, is adjusted to the user's height and posture. If you're looking to purchase a desk, choose one that's 70 to 85 cm high, depending on your height. Choose a chair with lumbar support to help maintain a natural spine alignment. A padded, height-adjustable ergonomic chair can reduce back pressure and increase productivity. The right chair also helps reduce fatigue from prolonged computer work.

Third, proper lighting. Light also plays a major role in a comfortable workspace. Poor lighting can cause eye fatigue and reduce productivity. An ideal ergonomic workspace should have sufficient natural light. If this is not possible, use artificial lighting that meets the 2018 Indonesian National Standard for Artificial Lighting. Use a desk lamp with cool light that mimics sunlight, and choose a lamp with a dimmer feature to adjust the lighting to your needs. The soft, diffused light will reduce glare from the monitor screen and help prevent Computer Vision Syndrome (CVS).

Table 1. Computer Vision Syndrome (CVS)

Fungsi ruangan	Tingkat Pencahayaan (lux)	Kelompok renderasi warna	Keterangan
Rumah Tinggal :			
Teras	60	1 atau 2	
Ruang tamu	120~250	1 atau 2	
Ruang makan	120~250	1 atau 2	
Ruang kerja	120~250	1	
Kamar tidur	120~250	1 atau 2	
Kamar mandi	250	1 atau 2	
Dapur	250	1 atau 2	
Garasi	60	3 atau 4	

Fourth, take breaks and physical activity. In addition to paying attention to posture and lighting, physical activity is also important to support ergonomic principles. Stand up, walk around, and do some light stretching every 25 to 30 minutes of work. According to the Pomodoro technique, taking a short five-minute break between work sessions helps maintain focus and reduces strain on the spine and eyes. This habit helps the body stay active and doesn't stiffen even after long hours of work.

Then another opinion according to Nanda Ritonga (2025) there are 8 office ergonomic standards, namely "1) the minimum work area is 2.2 cubic meters. The air space should be 15 cubic meters, 2). Layout of office equipment, 3) The size of the chair must be according to the user's size, have a backrest, have five wheels, and be adjustable. 4) Adjustable work desk. 5). Body posture should not be bent or leaned. 6). There is a corridor to facilitate evacuation in times of emergency. 7) Work duration according to NAB regulations, and 8). Differences in workload between manual and automatic, between men and women, and others ".

Ergonomics, Health and Work Productivity

According to M. Eky Krinadi Al Fikih et al (2025) that "the effective application of ergonomics can increase efficiency by up to 30%, reduce musculoskeletal complaints by 40%, and reduce absenteeism by up to 30%". Then, according to Busyaro Hasab Najmi Hakim et al (2024) that "by applying ergonomic principles, organizations can mitigate the risk of repetitive strain injuries and other work-related illnesses, thereby creating a healthier and more visible workforce. In addition, the application of ergonomics also supports mental well-being by reducing stress and increasing overall job satisfaction".

Furthermore, according to Kevin Hiskia Dijen, "the application of ergonomic principles is very important to maintain worker health, increase productivity, and create a safe and efficient work environment." Then according to Kemas Virga Zulkarnain (2026) said that "the application of good ergonomics can provide benefits to organizations and workers directly impacting increased

productivity and quality of work results." And, according to Derrell Jackson (2025) said that "office ergonomics is very important in creating a healthy and productive work environment by optimizing furniture, equipment and working conditions to improve employee health, safety and productivity."

The findings of this study provide practical implications for organizations, office managers, and business owners regarding the importance of ergonomic workspace implementation. Companies are encouraged to provide ergonomic office facilities such as adjustable chairs and desks, adequate lighting systems, and comfortable workspaces to support employee health and productivity.

In addition, organizations should educate employees about proper working posture, regular stretching activities, and the importance of taking short breaks during work hours. By implementing ergonomic principles consistently, companies can reduce workplace injuries, lower absenteeism rates, improve employee satisfaction, and increase organizational performance.

CONCLUSIONS

This study has several limitations. First, the research only used a literature review method without direct field observation or empirical data collection. Therefore, the findings are based solely on previous studies and expert opinions. Second, the study focused mainly on office workspaces and did not examine ergonomic implementation in other work sectors such as manufacturing, healthcare, or education.

Additionally, this study did not analyze specific statistical relationships between ergonomic factors and productivity levels. Future research is expected to use quantitative or mixed-method approaches to obtain more comprehensive and measurable findings regarding the impact of ergonomics on workplace performance.

Based on the analysis and discussion above, the following conclusions can be drawn:

1. Ergonomic office space is equipment capable of maintaining correct body posture, correct selection of chairs and tables, proper lighting, being able to rest and get sufficient physical activity.
2. By implementing ergonomics in office spaces, employees will be healthier and work productivity will increase.

RECOMMENDATIONS

It is recommended for entrepreneurs who have office space to design their offices ergonomically so that employees working in the office are always healthy and productivity can increase.

ADVANCED RESEARCH

Future research is recommended to conduct empirical studies involving direct observation and field surveys in office environments to measure the effectiveness of ergonomic workspace implementation on employee productivity and health outcomes. Further studies may also examine the relationship between

ergonomic office design and employee mental well-being, job satisfaction, and work motivation in different organizational settings.

In addition, future researchers are encouraged to use quantitative methods and statistical analysis to obtain more measurable and accurate data regarding the impact of ergonomics on work performance. Comparative studies between organizations that implement ergonomic principles and those that do not may also provide deeper insights into the long-term benefits of ergonomic workplace design. Furthermore, research on the integration of modern technology and smart office systems in ergonomic workspace development can become an important topic for future investigation.

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