Short Article

Electronic Workstation Ergonomics Self-Assessment Tool

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ABSTRACT: *Work-related musculoskeletal disorders are an important cause of work-related ill health. One of the causes is poor workstation ergonomics. Digitalization enables more efficient and effective ways to enhance ergonomics at the workplace. In this paper we share an electronic self-assessment tool for workstation ergonomics which we developed for our organization. This electronic tool can either be used online i.e. connected to company intranet or as a mobile application (app). The questions focused on ensuring a safe setup and promoting neutral body postures during the use of computer equipment and accessories. Strengths of this tool are: it was developed and can be maintained by in-house resource; it uses software already available in-house; there were no additional costs to the organization; data is secure and can be kept indefinitely on the company server; the tool is interactive and user-friendly; it can be used to assess workstation at home.*

Keywords: *Ergonomics, Self-assessment, Workstation*

1.0 INTRODUCTION

Employers are required to ensure that the safety, health and welfare of all their employees (Occupational Safety and Health Act, 1994). There has been an increasing trend of occupational disease due to ergonomics risk factors in Malaysia and this led to the publication of Guidelines on Ergonomics Risk Assessment at the Workplace (Department of Occupational Safety and Health, Ministry of Human Resources Malaysia 2017). These guidelines promote the use of self-assessment in ergonomics risk assessment in the workplace. Industry 4.0 which promotes digitalization is well known worldwide. Malaysia has a National Policy on Industry 4.0 (Ministry of International Trade and Industry, 2018). For BASF, digitalization is an integral part of our business and an important measure to enhance our efficiency (BASF, 2019a). Hence, to enhance ergonomics at the workplace in an efficient manner we developed an electronic workstation ergonomics assessment tool. This paper will share more information about this tool.

2.0 CONTENTS

The BASF Asia Pacific office ergonomics program (BASF, 2019b) contains both training and assessment modules. The assessment module includes an assessment questionnaire on workstation ergonomics arrangement. To increase the efficiency of screening we developed an electronic tool that would enable workstation ergonomics assessment both real-time and online i.e. immediate assessment when connected to company intranet or as a mobile application (app). The questions in workstation self-assessment were to check whether workstation is set up to achieve good

ergonomics, i.e. safe setup and promote maintaining neutral body postures during the use of computer equipment and accessories as illustrated in the table (Fig. 1). The starting page explains the objective of self-assessment screening and how it works (Fig. 2). If the employee's response reveals wrong practice, advice on the required corrective actions is provided (Fig. 3). If the person being self-assessed requires further assessment, they will be directed to the ergonomics focal person at their site (Fig. 4).

Figure 1 Good Ergonomics Practice

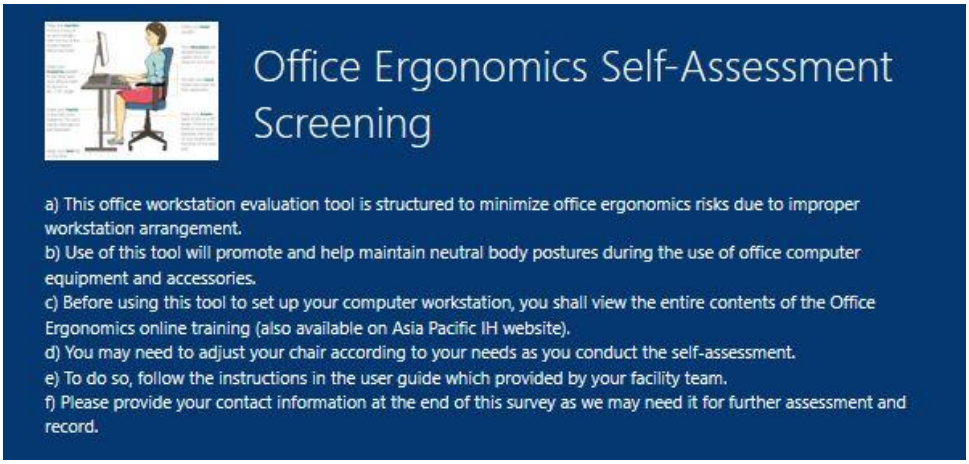

Figure 2 Starting Page of Online Office Ergonomics Self-Assessment Tool

1

Can you adjust your chair so that your feet are flat on the floor and your thighs are parallel to the floor? *

- ○ Yes
- ◉ No
- ○ Maybe

2

If your chair is still too high, unable to adjust low enough and your feet are not flat on the floor, add a foot rest so that your thighs are horizontal to the floor. Do you require support for footrest? *

- ◉ Footrest
- ○ No
- ○ Maybe

Figure 3 Example of Instruction of Corrective Action Required

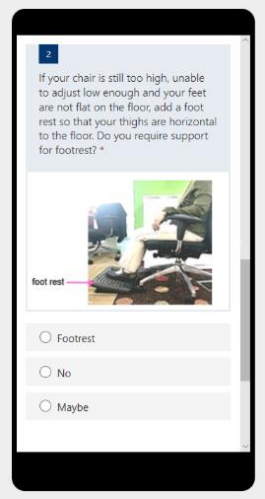

Figure 4 Application on Mobile Phone

This tool has many strengths which are summarised in Table 1.

Table 1 Characteristics of BASF Asia Pacific Electronics Workstation Assessment Tool

Aspects	Comments
Who developed	In-house resource
Who maintains	In-house resource
Cost for tool development	No additional cost
Cost for tool maintenance	No additional cost
Software	Existing company purchased software
Data security	Stored in company servers
Data longevity	Company server
User friendliness	Easy to use. Figures
Interactive	Next question or remark based on response
Home workstation	Can also be used

3.0 CONCLUSION

The BASF Electronic Workstation Ergonomics Self-Assessment Tool provides an example of how existing resources in an organization can be used to develop tools that further improve efficiency of delivering EHS services to employees across offices and sites. This simple digital tool was developed in-house by the relevant subject matter expert i.e. industrial hygienist using existing software available in the organization. The same expert will maintain the tool. Hence the organization does not have to bear additional cost of developing or maintaining this tool. Data security systems and own company server were used to ensure data is safe and accessible. The tool was developed to be user friendly and including appropriate figures. It was interactive whereby next question or remark was based on earlier response, improves user experience. The tool was designed based on principles of good workstation ergonomics and

can be used not only for workstations at the office but also workstations at home. We have found developing this electronic tool a positive experience and believe the product to be cost-effective. We encourage other occupational safety and health experts to develop similar tools to meet their specific needs and share their experience.

REFERENCES

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