



POSTURE ASSESSMENT FOR WORKERS REPETITIVE TASKS AT POULTRY FEED MANUFACTURING INDUSTRY

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*Peer-review under responsibility of 3rd Asia International Multidisciplanry Conference 2019 editorial board
(<http://www.utm.my/asia/our-team/>)*

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RESEARCH HIGHLIGHTS

Repetitive tasks can cause working posture problems, such as musculoskeletal disorders (MSDs) and cumulative trauma disorders (CTDs). This is very related to workers who repeat the same tasks and depending on manual handling processes. Posture analysis evaluations using the Rapid Upper Limb Assessment (RULA) and Rapid Entire Body Assessment (REBA) tools have been used to analyse the working postures of workers at poultry feed manufacturing industry. The aim of this study was to identify workers' risks of working posture problems, and to propose a standard of procedure to reduce MSDs and CTDs. The assessment was conducted using RULA and REBA worksheets. Three selected workers are divided into three different tasks. From the analysis had been done, the score obtain for RULA method is 7, 6 and 7 for Workers 1, Workers 2 and Workers 3 respectively. Meanwhile for REBA method, the score is 12, 6 and 5 for workers respectively. It is shows that the working postures is in high-risk, which need to be considered. It is expected that this research will help by proposing proper SOP and work position for reducing the risk of WMSDs in industry. In addition, this research is expected to increase the awareness regarding on the good working postures among workers.

Keywords: Posture Assessment, Ergonomics, RULA, REBA

RESEARCH OBJECTIVES

The main objective of this paper is to assess the posture of workers that having repetitive tasks at poultry manufacturing industry. In manufacturing industry, several tasks need to be performed in various ways which workers need to keep maintaining basic body posture(s) throughout the working days. While workers focusing on the quantity and quality of product, workers might do not concern about the right posture. The postures including crouching, standing, sitting or combination of various postures (1). The productivity, product quality and safety and health of the employees commonly related to the correct body posture while performing any task given to the workers (2,3). In order to avoid damage and strain to any part of the body, the working posture and task should be designed properly. The unsatisfactory working posture of workers while standing can be subconsciously adapted and accepted by workers itself which may lead to WMSDs. The MSDs problem keep increasing by year. The workers may not realize that their body is under strain until they feel actual pain which resulting to MSDs. This situation need to be changed. Hence, this paper suggested the good working position for manual handling machine workers, hence can propose proper SOP for workers focusing at poultry feed industry.

MATERIALS AND METHODS

RULA and REBA are direct observational methods that can assess workers body posture ergonomically. Both of the assessment method will be analysed by calculating the posture based on the chart that have been developed by McAtamney and Corlett in 1993 (4) for RULA and Hignett and McAtamney in 2000 for REBA (5). The improvement for ergonomic working posture can be done which helps to reduce WMSDs for workers. This study begins with the literature review on previous research study by using RULA and REBA methodologies for assessing the working postures. Hence, understand the use of RULA and REBA methodologies with its worksheets. Next, videos and figures of workers during working need to be recorded for detail analysis. After select the right postures to be analyzed, RULA and REBA worksheets will be used for postures assessment. After assessment had





been made, score will be obtained followed by action that need to be taken based on risk levels.

RESULTS

Fig. 1 shows the bar graph of RULA and REBA score for 3 workers involved. For RULA method, scores is 7, 6 and 7 respectively for worker 1, worker 2 and worker 3. As for REBA analysis, the scores is 12, 6 and 5 respectively for worker 1, worker 2 and worker 3. All scores is quite risky which it need to be investigate and implement change. Further investigation need to be done and the work posture need to be corrected. The score for sack lifting task is exceeding 11 which means it is in very high risk and the action need to be taken is to implement change.

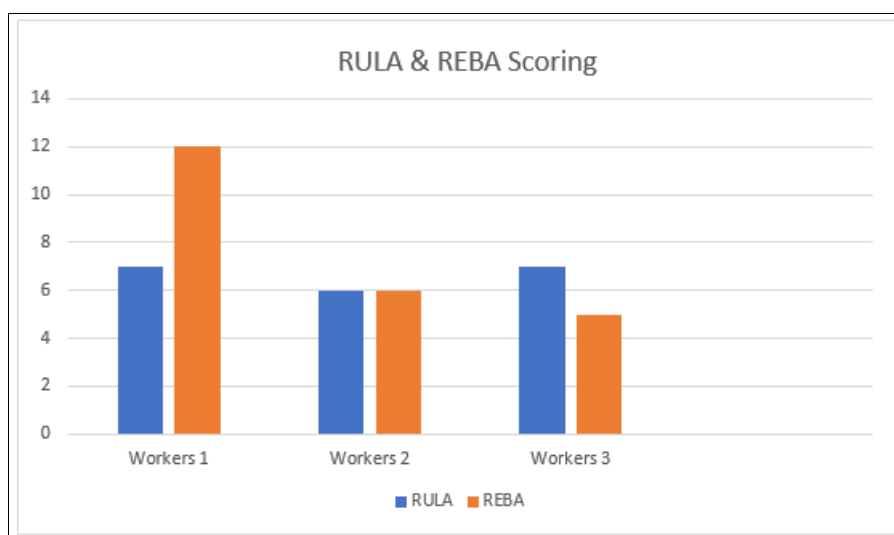


Fig. 1. Bar Graph of RULA and REBA Score for Each Worker

FINDINGS

In conclusion, working posture of workers at poultry feed manufacturing industry is successfully had been analyzed by using RULA and REBA method. The proposed of the new SOP is expected to reduce the fatigue and potential WMSDs among the workers.. It is suggested that the workstation for Worker 1 need to be improved by add lifting equipment and installing the conveyor at lower height. The score indicates the worker 2 works in medium risk to experience WMSD. It suggested that the workstation need to be improve by preventing the workers from twisting the body while doing the task. In addition, it is also suggested to install adjustable platform at the workstation to avoid the workers raising their hand to reach at certain position. The SOP based on new work position is considered. This is important to ensure the workers do the task in proper condition which help to improve work efficiency.

ACKNOWLEDGEMENT

Authors thank the Research University Grant Tier 1 scheme (Grant No. H250), Universiti Tun Hussein Onn Malaysia (UTHM) for the research fund. The authors also grateful to the Faculty of Engineering Technology (FTK, UTHM) and PK-Agro Industrial Products (M) Sdn Bhd for the research supports and opportunities.





REFERENCES

- 1 Department of Occupational Safety and Health Malaysia. (2017). Guidelines on Ergonomics Risk Assessment at Workplace 2017. *Ministry of Human Resources (Malaysia)*, 155.
- 2 Upasana and Vinay, D. (2017). Work Posture Assessment of Tailors by RULA and REBA Analysis. *International Journal of Science, Environment and Technology*, 6(4), 2469–2474.
- 3 Mahendra, K. C., Virupaksha G. H., and Gouda, A.T. (2016). Ergonomic Analysis of Welding Operator Postures. *International Journal of Mechanical and Production Engineering*, 6, 9–22
- 4 McAtamney, L. and Corlett, N. (1993). RULA: a Survey Method for The Investigation of World-related Upper Limb Disorders. *Applied Ergonomics*, 24(2), 91-99.
- 5 Hignett, S., and McAtamney, L. (2000). Rapid Entire Body Assessment (REBA). *Applied Ergonomics*, 31(11), 201–205.

