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PAITON NGAMMUK : QUANTITATIVE RISK ASSESSMENT OF MUSCLE LOAD IN BATTERY PLATE LIFTING WORKERS AFTER WORK STATION IMPROVEMENT.
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The purpose of this research was to assess quantitative risk of muscle load in battery plate lifting workers after work improvement. This study concentrated on 12 workers who lift battery plate and the data were collected repeatedly 3 times throughout 4 work cycles by observing the working posture, measuring muscle load using Electromyography (EMG), measuring the level of general fatigue subjective feeling and measuring the level of median frequency (MF) of right and left Erector spinae before and after work station improvement.

The results of this study revealed that there was high significant relationship between working posture and muscle load of left and right from lifting battery plate at the Elbow - Floor height ($p < 0.029$, $r = 0.63$) and ($p = 0.013$, $r = 0.85$) respectively. The average of lifting posture at Elbow-Knuckle height and Knuckle-floor height before and after work station improvement showed no significant difference ($p = 0.043$). The comparison of left and right back muscle load between before and after work station improvement of lifting at Elbow-Knuckle height and Knuckle-floor height revealed that after work station improvement left back muscle load showed higher responses than before work station improvement ($p = 0.063$). Right back muscle load of lifting at Elbow-Knuckle height and at Knuckle-Floor height showed that back muscle load after work station improvement had decreased significantly less than before work station improvement ($p = 0.033$). The comparison of general fatigue after work station improvement had decreased less significantly than before work station improvement ($p < 0.05$). When comparing median frequency of back muscle it was found that right back muscle before and after work station improvement showed significant difference ($p = 0.031$). Therefore, it could be concluded that right back muscle fatigue after work station improvement decreased compared with those before work station improvement ($p < 0.05$). From the results of this study, it was recommended that the length of pallets of lifting battery plate should be appropriate to Elbow-Fingertip length of workers which should not exceed 33 centimeters. An adjustable rotary pallets should be provided, increasing the width between pallets which should be more than 46 centimeters. Training the correct method of battery plate lifting to avoiding, twisting and stretching trunk to prevent disorder and injury in the musculoskeletal system caused by awkward postures. Furthermore, the measurement of back muscle load of battery plate lifting workers should be continuously carried out to predict trend of back muscle load after work station improvement.