KINGDOM OF THAILAND

The Study of the Alleviation of Cumulative Trauma Disorder in 5 Bar Weaving Machine Operators Using Ergonomics Approach

Abstract

The objectives of the study, "The Alleviation of Cumulative Trauma Disorder in 5 Bar Weaving Machine Operators Using Ergonomics Approach", are to solve ergonomics problems due to working posture and to increase efficiency in 5-bar weaving machine production. Two methods, which attempt to reach this study's objectives, were investigated. The first method involved the removal of a part of a weaving machine called the "Heddle Frame and Reed" which allowed the operators to work with better working posture at a constructed model outside the weaving machine. The second method involved working at the weaving machine but changing the reed position by move it to a reed-supporting stand that was built in front of the machine.

OWAS, RULA, Biomechanics, Electromyography (EMG), working time, as well as questionnaires about body discomfort and operator's satisfaction according to weaving posture, were used to analyze the experiments. Comparison of results from the two newly designed methods to a traditional method showed that both of the newly designed methods should reduce cumulative trauma disorder in operators and increased efficiency by reduced working time in equivalent output. Due to the effective alleviation of cumulative trauma disorder, working at the constructed model is recommended with some model adjustments and proper working posture training.

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