

Development and Validation of Work Movement Task Analysis: Part 1

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Abstract : Work-related Musculoskeletal Disorder (WMSDs) is one of the occupational health problems encountered by workers over the world. In Malaysia, there is increasing in trend over the years, particularly in the manufacturing sectors. Current method to observe workplace WMSDs is self-report questionnaire, observation and direct measurement. Observational method is most frequently used by the researcher and practitioner because of the simplified, quick and versatile when it applies to the worksite. However, there are some limitations identified e.g. some approach does not cover a wide spectrum of biomechanics activity and not sufficiently sensitive to assess the actual risks. This paper elucidates the development of Work Movement Task Analysis (WMTA), which is an observational tool for industrial practitioners' especially untrained personnel to assess WMSDs risk factors and provide a basis for suitable intervention. First stage of the development protocol involved literature reviews, practitioner survey, tool validation and reliability. A total of six themes/comments were received in face validity stage. New revision of WMTA consisted of four sections of postural (neck, back, shoulder, arms, and legs) and associated risk factors; movement, load, coupling and basic environmental factors (lighting, noise, odorless, heat and slippery floor). For inter-rater reliability study shows substantial agreement among rater with $K = 0.70$. Meanwhile, WMTA validation shows significant association between WMTA score and self-reported pain or discomfort for the back, shoulder&arms and knee&legs with $p < 0.05$. This tool is expected to provide new workplace ergonomic observational tool to assess WMSDs for the next stage of the case study.

Keywords : assessment, biomechanics, musculoskeletal disorders, observational tools

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