

**DEVELOPMENT OF MANUAL LIFTING GUIDELINES FOR
SRI LANKAN POPULATION**

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DECLARATION

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Name of the supervisor: Dr. Himan K.G. Punchihewa

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ABSTRACT

Restricted work time due to poor occupational health and safety practices take a particularly heavy toll in developing countries, such as Sri Lanka. Work-related musculoskeletal disorders are among the most frequently reported causes of lost or restricted work time. Low back disorder is the major musculoskeletal disorder in most of the industries, where lifting is associated as a major risk factor. Therefore it is important to design manual lifting tasks to not to exceeding the limits of musculoskeletal systems to avoid musculoskeletal disorders. Ergonomists have conducted research on manual material lifting over last few decades to reduce the low back disorders. As a result of above research there are large number assessment lifting tools developed. There is no evidence on validating the above mentioned lifting assessment tools to the Sri Lankan context and also there is no ergonomic guideline or lifting assessment tool developed considering the body sizes of Sri Lankan population. This study would lead to the development of ergonomic guidelines for manual lifting for Sri Lankan population using existing lifting assessment tools.

Revised National Institute for Occupational Safety and Health (NIOSH) Lifting Equation, American Conference of Governmental Industrial Hygienists lifting Threshold Limit Values and Washington Industrial Safety and Health Act Rule Lifting Calculator were identified as key lifting assessment tools. A case study was conducted in a manufacturing plant to check the validity of the above manual lifting assessment tools identified through the literature review. Ergonomic discomfort scale was used as a tool for getting the workers response on above tools. The outputs of all the lifting assessment tools calculated and converted to lifting indexes similar to the lifting index calculated in NIOSH lifting equation. Results of the lifting assessment tools compared with the ergonomic discomfort feedback of the workers who performing lifting tasks. The ergonomic guideline for Sri Lankan population was developed by using the results of above comparison. The developed guideline was validated using a case study. The developed guideline was validated only for male population and future development of manual lifting guideline for Sri Lankan female population is possible.

Keywords: Manual lifting assessment tools, ergonomic guidelines

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LIST OF ABBREVIATIONS

Abbreviation	Description
ACGIH	American Conference of Governmental Industrial Hygienists
ILO	International Labour Organization
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
OH&S	Occupational Health and Safety
OHSAS	Occupational Health and Safety Assessment Series
USA	United States of America
WISHA	Washington Industrial Safety and Health Act