

A Review: Ergonomics Risk Assessment in Worldwide Logistic Industry

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Structured Abstract

Background: Musculoskeletal disorders (MSDs) continue to be a major occupational health concern in the logistics industry. These disorders, particularly affecting the trunk area such as the lower back, are strongly associated with physical demands, awkward postures, and repetitive tasks typical of logistics operations. This study provides a comprehensive review of the most common ergonomic risk factors, the prevalence of trunk-related MSDs, and the application of assessment techniques like Rapid Upper Limb Assessment (RULA) and Rapid Entire Body Assessment (REBA) within the logistics sector globally.

Methods: The study conducted a structured literature review based on selected journal articles and case studies focused on logistics tasks, including manual material handling, prolonged standing, and high-risk postures. The research specifically analyzed how RULA and REBA were used in these studies to evaluate ergonomic risks, including the methodologies involved such as simulation-based versus field-based assessments.

Results: Findings revealed that lower back pain is the most commonly reported MSD among logistics workers. Key contributing ergonomic risk factors include awkward posture, prolonged static postures (standing/sitting), and forceful manual handling. RULA and REBA were the most frequently used ergonomic assessment tools. However, a significant number of studies relied on simulated conditions rather than real-life observations, limiting the applicability of results. Further limitations identified were the lack of actual ergonomic interventions tested and the narrow demographic of participants in many studies.

Conclusion: This review highlights the need for more inclusive, field-based ergonomic assessments in logistics environments. Future research should prioritize real-world ergonomic interventions and broaden participant diversity to enhance the relevance and effectiveness of risk reduction strategies in the industry.

Keywords: Ergonomics, Musculoskeletal Disorders, Logistics, RULA, REBA

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