

## Ergonomic interventions for improving working postures associated with manual materials handling (A case study of a mineral processing plant)

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### Abstract

**Introduction:** A high percentage of musculoskeletal disorders in workplaces occur due to awkward posture and non-ergonomic design of the work stations for lifting and carrying of materials. To avoid these injuries, jobs should be designed in a way that ergonomics risk factors are controlled properly. The aim of this study was to utilize ergonomics interventions to minimize ergonomics risk factors in bag packing unit in a mineral processing plant.

**Material and Method:** This cross sectional study was carried out among 20 workers of bag packing unit. Camera recording of working postures, evaluation of medical records, interview, and REBA technique were used to identify the ergonomic risk factors. Interventions included changing the conveyor belt height and the use of spring pallets (spring table). Data were analyzed using Paired T-Test by SPSS software version 18.

**Result:** Before implementing ergonomics intervention, a total of 75% of evaluated postures by REBA technique obtained score of 8-10 (very high risk level) and 25% had score of 11-15 (very high risk level) that correspond to the action level 3 and 4, respectively. Following the implementation of ergonomics interventions, a total of 90% of the analyzed postures showed action level 2 (moderate risk level) and the remainder 10 percent of evaluated postures showed high risk level. Comparison of REBA technique scores before and after implementing interventions showed a significant difference (P-value < 0.05).

**Conclusion:** Based on the findings of this study, the implementation of ergonomics interventions has remarkably decreased the required action level and it may be able to improve work-related postures.

**Keywords:** *Ergonomic Intervention, Manual Material Handling, REBA, Spring Table*

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