

Daily shoulder pain and its associations with biomechanical and psychosocial factors among Swedish flight baggage handlers

Bergsten EL^{a, c}, Mathiassen SE^a, Kwak L^b, Vingård E^c

- a. Centre for Musculoskeletal Research, Department of Occupational and Public Health Sciences, University of Gävle, Sweden, b. Unit of Intervention and Implementation Research for worker health, Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden, c. Occupational and Environmental Medicine, Department of Medical Sciences, Uppsala University, Sweden

Introduction: Flight baggage handlers are engaged in sorting, loading and unloading baggage from aircrafts, which involves manual handling and transport of bags using conveyor belts, carts and trucks. Baggage handlers are also engaged in directing air traffic on the ground, towing aircrafts to gates, serving them with auxiliary power units, brakes and light (4). These tasks are similar in all larger airports worldwide. In 2010, the Vocational Training and Working Environment Council, TYA, in Sweden initiated a five-year project devoted to documenting physical and psychosocial work conditions as well as musculoskeletal disorders (MSDs), as a basis for developing ergonomic interventions decreasing the risk of MSDs. The prevalence of low-back and shoulder pain was high and psychosocial factors were associated with the severity of pain and pain interfering with work (1). The aim of the present study was to determine the extent to which shoulder pain developed during individual work shifts, and whether a possible development was associated with biomechanical exposures and psychosocial factors during the same shift.

Methods: Data were collected during 82 shifts in 44 baggage handlers at a large Swedish airport. Right and left shoulder pain intensity was rated before and after each shift. Accelerometer data on time in extreme and neutral arm postures were obtained for the full shift and the participants registered the number of aircrafts handled in a diary. During half of the shift, the participants were recorded on video for subsequent task analysis of baggage handling. Influence at work and support from colleagues were measured using the Copenhagen Psychosocial Questionnaire (COPSOQ)(2). Associations between exposures and the increase in pain intensity during the shift (daily pain) were analysed for the right and left shoulder separately using Generalized Estimating Equations (GEE).

Results and conclusion: Daily pain was reported in one third of all shifts, and it was significantly associated with the number of aircrafts handled for both shoulders. In multivariate models including biomechanical exposures, influence at work and support from colleagues, aircrafts handled was still significantly associated with daily pain in both shoulders, and so was influence and support. These results suggest that reduced biomechanical exposures and an improved psychosocial work environment would lead to reduced daily pain among flight baggage handlers.

Referenser

1. Bergsten EL, Mathiassen SE, Vingård E. Psychosocial Work Factors and Musculoskeletal Pain: A Cross-Sectional Study among Swedish Flight Baggage Handlers. *BioMed Research International*. 2015;2015:11.

2. Pejtersen JH, Sondergard Kristensen T, Borg V, Bjorner JB. The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian Journal of Public Health*. 2010;38(3):8-24.

3. Wahlström J, Bergsten E, Trask C, Mathiassen SE, Jackson J, Forsman M. Full-Shift Trunk and Upper Arm Postures and Movements Among Aircraft Baggage Handlers. *Annals of Occupational Hygiene*. 2016;60(8):977-90.