Physiological workload of farm women in paddy storage activity of Assam

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ABSTRACT

Storage of paddy grains is one of the most drudgery prone post harvest activity of Assam, which is predominantly performed by rural women. Assessment of exposure to physiological workload, postural stress and work related musculoskeletal disorders (WMSDs) risk factors can be an appropriate base for planning and implementing interventional ergonomics programmes. In developing countries like India the workers suffer from assorted health problems due to awkward postures and carrying heavy loads (Mukhopadhyay, 2008; Sett and Sahu, 2008). They concluded that WMSDs resulted from frequent trunk bending, twisting and repetitive handling of load at a time and women have a higher prevalence rate of WMSDs than that of men. An attempt was made to assess physical fitness of participants, to determine physiological workload involved in storage of paddy grains and to ascertain muscular and postural stress involved in the activity. Thirty subjects in the age group of 25-35 years who are having normal, non-pregnant, and non-lactating having normal blood pressure and without any major illness were selected for the purpose of the study. Electronic tread mill was used for assessing physical fitness of the respondents. Heart rate was recorded with heart rate monitor and postural stress in different region was measured with inclinometer. For postural analysis Ovaku Work Posture Analysis System (OWAS) method was used. Rating of perceived exertion (RPE) was calculated by using 5 point rating scale developed by Varghese *et al.* (1994). Body map was used to identify the body part discomfort (BPD) in different parts of the body. The findings on physical characteristics of the respondents revealed that mean age of the respondent farm women was 32 years of age. Average height of the respondent farm women was 151.42 cm, average weight was 45 kg. Lean body mass (LBM) of the respondents was 32.35 kg. Body mass index (BMI) of the selected respondents was 20.87 and Vo_2 max (ml/kg^{-1}.min^{-1}) was found to be 26.73, respectively. Fat percentage of the respondents was 28. Most of the respondents (47 %) belonged to 'ectomorphic' group. Thirty three per cent of farm women had 'very good' level of physical fitness. The physiological workload of farm women in storing paddy was categorized as 'heavy' activity. It was found that work postures have a distinctly harmful effect on musculoskeletal system of the farm women. The angles of average flexion was highest in upper arm (90.62^0) and extension was in thoracic and it was observed to be 115.30^0 indicating deviation of body parts. The farm women perform the storage activity under acceptable level of