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Postural analysis of male worker operating maize thresher cum dehusker

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In this paper, postural analysis of the key working postures of the worker during operation of maize threshing cum dehusking machine is presented. Maize is one of the most versatile emerging crops with wider adaptability under varied agro-climatic conditions. Though machines are being used for the threshing of maize, still many activities during threshing are required to be done manually. In this study, rapid upper limb assessment (RULA), lift/lower analysis and biomechanics analysis are carried out. The RULA analysis of all the five postures in the study gives a final RULA score as 7 for each posture which means that investigation and changes are needed immediately. Lift lower analysis shows that acceptable weight is 7 kg, which is less than the actual weight handled by the operator. Also, biomechanics analysis shows that the L4-L5 moment, L4-L5 compression, body load compression, axial twist compression, flex./ext. compression, and L4/L5 joint shear values are more than the acceptable. Thus, the analyses show that postures are not good and may cause musculoskeletal problems to the workers and need to be changed in order to make operations more user friendly, comfortable and efficient. In this work, Delmia V5 tools like Digital Human Manikin (DHM) and human activity analysis are used.

Biography

Ravindra Tatyasaheb Vyavahare has completed his Master's degree in Engineering from Shivaji University and is pursuing PhD in Mechanical Engineering from Solapur University, India. He has published/presented more than 10 papers in reputed journals/conferences.

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