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An intervention study to reduce ergonomic exposures during drywall installation

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Drywall installation task has exposure to a number of risk factors that may lead to musculoskeletal injuries and illnesses. These exposures include awkward body postures, heavy handling of drywall panels and the necessity to lift the panels in overhead arm postures while being on a ladder. Consecutive studies were conducted to assess the physical exposures of the task and to implement interventions which aimed to reduce the exposure. The quantitative efficacy of a tool in reducing the exposures for ceiling installation was established by the PATH (Posture, activity, tools, handling) and the 3DSSPP (3 dimensional static strength prediction program) method. Comparison of PATH data between the baseline and intervention explored 50.0% reductions for both overhead arm posture (from 62.0% at baseline to 31.0% at the intervention) and awkward trunk postures (from 18.0% at baseline to 9.0% at the intervention) while working on ladders. A 41.0% reduction in heavy handling was observed while the installers were working on ladder (baseline observation 12.0%, intervention observation 7.0%). 3DSSPP program was used to calculate the changes in shoulder moments and back compressive force between the baseline and intervention. 3DSSPP analysis showed significant reduction of low back compressive force ($P=0.005$) and shoulder moments ($P=0.0005$ for right shoulder, 0.04 for left shoulder) at the intervention phase while lifting and attaching the panels to the ceiling. Installers' perception of the tool on its usability, stability, drywall panel supporting strength and production speed were positive. This evidence-based tool is currently being disseminated within the Boston drywall installers' community.

Biography

Priyadarshini Sengupta Dasgupta has completed her ScD from the Department of Work Environment at the University of Massachusetts at Lowell (UMass Lowell) in 2013. For her doctoral thesis, she has worked primarily on assessing the exposures which eventually develops the musculoskeletal injuries and illnesses in the drywall installers and implementing interventions to reduce those exposures. Prior to coming to the US, she has completed her Masters in Physiology and Masters in Biomechanics from India and France respectively. Presently, she is continuing as a research scientist at UMass Lowell. Her present research is focused on dissemination of an evidence-based tool.

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