

An electromyographic analysis of an ergonomic intervention with the jackleg drill

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The jackleg drill is involved in more accidents than any other hand tool used in the underground metal/non-metal mining industries. A significant portion of these accidents are exertion injuries to the trunk. The experiments described in this paper were developed as a result of previous task and biomechanical analyses evaluating the operation of the jackleg drill. A simulated mine was developed where subjects were asked to perform transporting, positioning and removal tasks with and without an additional handle mounted on top of the drill casing. In addition, the positioning, collaring and removal tasks were conducted at three hole heights representative of those found underground. EMG results, along with predicted compression and shear via biomechanical modelling, indicate that the additional handle would need to be presented in conjunction with training in order to be an effective ergonomic aid.