

SA03: Re-designing and evaluating two protective gloves for industrial assembly work

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Abstract

The study investigated the effects of the two new designs of cotton gloves on several hand performance capabilities (including time to complete the pegboard test, number of errors, hand grip strength, pinch strength and forearm torque strength) and compared them against the barehanded, single-layered and double cotton glove conditions while working with hand tools (screwdrivers and pliers). The re-designed gloves were based on the subjective hand discomfort assessments so that the thickness could be suited to particular areas of the hand. The first prototype glove and the barehanded condition were comparable and produced lower pegboard completion times and higher hand grip strength values than double gloves. Lower number of errors was recorded with the first prototype glove than with double gloves or second prototype glove. The findings suggest that improved dexterity and tactile feedback in some areas of the hand with the first prototype glove tended to give more improvements in performance and strength capabilities of the hand than improved finger and joint flexibility with the second prototype glove.

Keywords: glove; screwdriver; pliers; hand performance, strength



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