

DOES TRAINING ON LIFTING TECHNIQUES ADVERSELY AFFECT CASE HANDLING TIMES?

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Research has shown that the loads on the spine are affected by the lifting techniques used. The popular notion among those working in material handling jobs is that use of good lifting techniques adversely affects productivity. In grocery distribution centers where productivity is continuously monitored, and often used as the basis for incentive systems, workers are reluctant to modify their lifting behaviors due to perceived time pressures. The current study tested the following hypotheses: (1) Overall, training employees in lifting techniques does not result in significantly longer lift durations. (2) The change in lift duration following training is dependent upon the lifting style adopted. (3) The change in spine moments achieved through training is related to the lift duration. Two hundred sixty five grocery distribution workers underwent a one-on-one training session using *The Lifttrainer*TM biofeedback system. The LiftTrainer hardware uses a magnetic motion measurement system to track movements as lifts were performed. The LiftTrainer software uses the movement and box weight data in a dynamic 3-D linked segment model to instantaneously calculate the 3 dimensional moment vector acting on the spine. Productivity was assessed in this study by measuring the duration of each lift. Overall, the data show there was not a significant increase in case handling times following the training. However, the changes in case handling times were dependent upon the lifting style adopted by the trainees. Those adopting a 2-step technique averaged 0.3 seconds longer per lift while those who adopted a "pivot" or "swing" technique end up lifting equal to or faster than they did in the lifts demonstrated prior to training. All three of the identified techniques led to significant reductions in the spine moments. The magnitudes of the reductions were only weakly correlated with changes in lift duration. In summary, our findings show that workers do not have to sacrifice job performance when reducing their spine loads through improved lifting techniques.