

Forklift Research Project Fact Sheet

Analysis of Postural Loading in Lift Trucks

*Objective:
To understand the
postural loading
and risk associated
with different
driving tasks*

Background

The poor visibility associated with operating lift trucks often causes operators to adopt extreme postures in order to see where they are going and what they are doing. These extreme postures pose a number of health and safety risks, the most obvious being musculoskeletal injuries associated with awkward postures. Another common issue that arises is that of seat belts, which are required at all times during the operation of lift trucks. Often it is impossible for the operator to obtain sufficient visibility because of the restricted movement caused by the seat belt, forcing the driver to compromise, posing a risk to themselves and others.

The results of this study will yield a better understanding of the postures adopted during different tasks and the impact these postures have on the operator.

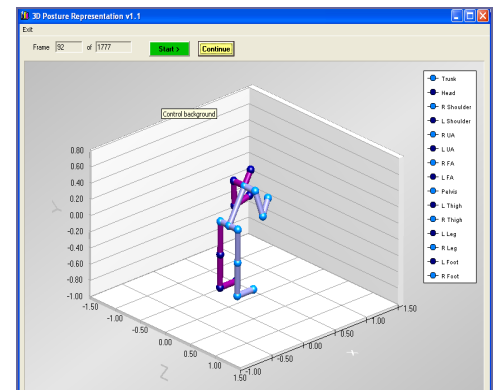
Methodology

Portable cameras were used to collect video data from different views with the operator completing a number of tasks common to the workplace. These video clips, separated according to task were processed using 3D match (version 4.52, Callaghan). 3D match is a program that allows the user to match a software mannequin's posture to what the operator is doing in the video. Once the entire video is processed in this manner an output of joint angles and some joint forces is provided along with a 3D animated mannequin of the postures that subject adopted throughout the video.

This program is ideal for understanding the complex postures and their resultant forces on the body during forklift operation. Ultimately improving understanding of the risk associated with certain tasks.

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Applications



Analyzing postures in this manner allows for a comparison between different lift truck models. This will help determine which existing truck models are less of a health and safety risk to the user and where modifications should be made to future models to decrease risk.

Contact

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