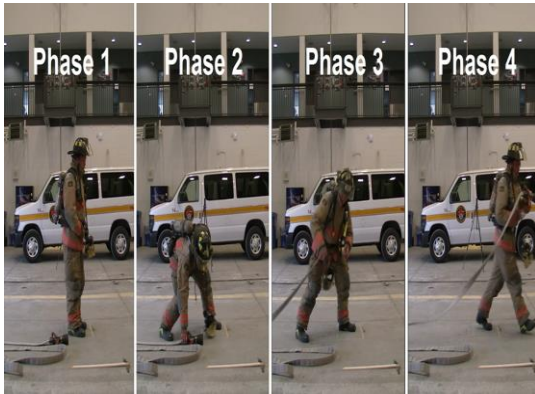




### Evaluating the Ovako Working Posture Assessment System (OWAS) to identify firefighter injury risk using Dartfish video analysis software

We wanted to know if we can use video analysis software with a work injury risk assessment tool to analyze firefighter work tasks.



#### What is the problem?

Firefighters often perform tasks that can put them at risk for injury. Using video analysis software (Dartfish) along with a work injury risk assessment tool (Ovako Working Posture Assessment System = OWAS) is a new way for clinicians to analyze firefighter work tasks. The goal of our research was to determine how trustworthy, or reliable, OWAS was when using it with Dartfish. We also wanted to know if looking at 3 camera angles (side views, and front view) at the same time would make scoring of OWAS even more reliable.

#### How did the team study the problem?

Three raters analyzed videos of 20 firefighters performing a simulated hose drag task and scored them with OWAS. After thoroughly examining the videos, including breaking them up into 4 different phases of the hose drag task, we analyzed our results. Statistical analysis was performed to determine how much the raters' scores agreed with one another. The more often raters agree with one another, the more trustworthy the tool is.

#### What did the team find?

We found that during simple movements, such as standing, raters had very good agreement and reported similar OWAS scores. However, once the firefighters started doing more complex movements such as bending and twisting, the reliability of OWAS became quite poor. It was also found that combining camera views only increased agreement during simple movements, and had no effect on complex movements. In conclusion, we found that combining OWAS and Dartfish was not a very trustworthy way to assess injury risk in firefighters performing complex movements.

#### How can this research be used?

The OWAS was not reliable enough to score the complicated movements (bending, twisting) performed by firefighters, therefore, we do not recommend using OWAS to assess injury risk. Future research should investigate Dartfish with more advanced work risk assessment tools that are adept at evaluating complex postures. Tools that have been proven to be trustworthy in firefighters can be used by fire services to accurately identify injury risk in firefighters.

#### Cautions

The OWAS does not have detailed assessment criteria or formal training requirements. The raters have clinical expertise in musculoskeletal physiotherapy, but did not receive standardized training on the OWAS.

**Reference:** Hurley T, Zalan K, Wang J, Habrowski E. (Supervisors: MacDermid J & Sinden K). Evaluating the reliability of the Ovako Working Posture Assessment System (OWAS) to characterize firefighter injury risk using Dartfish video analysis software. McMaster University Research Evidence-Based Practice Symposium. Hamilton, Ontario. July 25, 2017.

**Funding Sources:** Ministry of Labor FRN #13-R-027