



Draft 1 - December 1, 2010

Pilot Ergonomic Work Assessment: Executive Summary

Associated Press has contracted the NYU Hospitals Center on behalf of the Occupational & Industrial Orthopaedic Center (OIOC) to conduct a Pilot Ergonomic Work Assessment of Still Photographers and Video Camera Operators at Associated Press. The purpose of the work was to 1) identify ergonomic issues specific to the photojournalism field that are related to musculoskeletal injuries, and 2) to develop injury control measures.

The SOW stated the consultant will review the injuries reported by the photographers of AP (Task 1) then perform an ergonomic assessment (Task 2) of job demands of the photographers using an on-line survey, focus groups and direct observations of selected tasks, measurement and analysis of physical load based on the data collected, such as videotapes, using biomechanical and physiological software where appropriate. A review of equipment was to be conducted by Associated Press with OIOC providing comments or some additional testing (Task 3). The OIOC was also to develop material for training to control risk factors for musculoskeletal injuries identified through the biomechanical analysis (Task 4). This is a summary of the findings reported in the various deliverables of the study and contains some recommendations for further action.

Results

A review of OSHA logs filed by AP photographers in 2004-2008 (Task 1) revealed a need to prevent back injuries due to overexertion (all 7 back injuries were classified as overexertion). A survey conducted in 2009 (Task 2.1) further revealed that many cases of back pain go unreported. Of 60 responses, 49 mentioned back pain that went unreported; 6 of them were constant pain.

Focus groups of photographers acted as subject matter experts and generated a profile of job demands based on the physical abilities required for various tasks (Task 2.2). Four physically demanding tasks were selected as targets for in-depth analysis:

1. *Stamina* – Carrying gear, run and shoot long events –golf event
2. *Static/Explosive/Trunk Strength* tasks – loading and unloading car trunk – simulated with several types of cars but standardized equipment
3. *Extend Flexibility* – Kneeling or sitting cross legged while twisting the trunk to shoot moving objects –basket ball game
4. *Arm-Hand Steadiness* – Keeping hands & arms steady while walking/running with hand-held cameras and shooting at a distance in low light – White House press conference.

Several limitations were noted while assessing the risks involved in these tasks. The most important one is that this project focused on overexertion injuries that are the result of peak forces. Some of the problems may be the result of cumulative exposure to forces. These effects could not be assessed with this study design.

The risks identified through the in-depth analysis (Task 2.3-2.4) can be summarized as follows:

- Overexertion of the back occurs while loading and unloading bags and backpacks (20-50 lbs) from the trunk of a sedan car. These activities generated high compression forces on the disc of the lower spine. These tasks are also expected to generate high forces acting on the lower extremities of both males and females, mainly the hips and knees.
- Shoulder forces may be the limiting factor while kneeling using heavy cameras and

- lenses (18 lbs) for photographing events such as press conferences.
- High stamina is required for covering long sports events such as golf tournaments. Further analysis confirmed that high energy needs to be expended in golf tournaments mainly during intermittent carrying and running with about 39 lbs of gear and cameras for more than 4 hrs a day and the transporting of the gear to the car.

Based on the biomechanical analysis, safe body mechanics recommendations (Task 4) targeted the loading and unloading of bags and backpacks from the trunk of the car. Additional recommendations aimed at making photographing as well as carrying of gear more comfortable. The recommendations were also organized by body part (neck/shoulder, back, and knees/legs).

To improve comfort, the safe biomechanics recommendations also addressed equipment and gear. Specifically, it suggested targeting lighter cameras for press conferences as well as pods to reduce kneeling. It further suggested targeting the coverage of long sports events for *engineering* solutions - lighter gear that is easier to handle - as well *administrative* solutions - assigning more than one photographer to an event and promoting general aerobic fitness. As a result of the findings from the job analysis and biomechanical analysis, the task for market review and testing (Task 3) was modified to focus on usability. A focus group addressed the usability of the equipment available for photographers in terms of the features of the equipment as well as its appropriateness of job assignments.

The findings regarding usability can be summarized as follows:

- The features most commonly required are: variable sizes, light weight materials and sturdy handles.
- The equipment with the most complex requirements (highest number of features to consider): backpack, sling bag and rolling case.

- The most complex event in terms of the equipment required: sporting events, followed by natural disasters and the 'day to day regular assignments'.
- The equipment with most varied use (highest number of assignments where the equipment is in use): backpacks, followed by mono/tripods, fanny/waist packs, belt/harness/vest systems.

This type of review can guide us in focusing future efforts for selecting of equipment. Several strategies can be deployed. One can use backpacks as a starting point for a review, looking for products that are light in weight, come in various sizes and have sturdy handles. This strategy is the most complex but one which will have the largest impact. This should follow by rolling cases and folding carts, two items the usability focus group pointed out are a serious concern for those who travel a great deal and takes into account the needs of video-journalists. Another approach is to start solving the simpler cases first such features of hatchback cars, rotating floor seats and mono/tripods.

Recommendations

1. Create a formal process for reviewing usability of market innovations. The review could be part of the activities of a safety committee.
2. Consider using an ergonomic consultant to help the safety committee in addressing the usability of equipment in a systematic periodic review. The OIOC would be interested in providing the consultation as a service agreement.

Two additional recommendations emerged from the latest survey and were reinforced by this study:

3. Consider using an outside consultant for the development of a wellness program with strength and aerobic fitness as the key building block for such a program.
4. Develop comprehensive training and proactive injury prevention program, which would coordinate the wellness with the safety and comfort issues.