



Testing a Heat-Reflecting Vest for Construction Workers

Aluminet: An Intervention for Heat-related Illness among Construction Workers

Mark Schall, Richard Seseck, David Pascoe, Lauren Redden, Connor Lusk, Xuanxuan Zhang, Mohamed Badawy, Sarah Cressman. CPWR Report, December 2017.

Overview

Heat illness is a major occupational hazard for construction workers, who often spend the summer months working outdoors or in hot, enclosed spaces. Manufacturers are producing a growing array of protective garments and products geared to the construction workforce to mitigate heat stress. In this study, researchers tested a new aluminum-fiber (“Aluminet”) vest designed to reflect heat. A population of 15 concrete and landscaping workers wore the Aluminet vest one day, and conventional garments another, while working in similarly hot and humid conditions. The research team measured the workers’ body temperatures and heart rates and solicited worker feedback on the product.

Key Findings

- Aluminet vests (50% aluminum weave) were not observed to have a statistically significant effect on workers’ body temperatures or heart rates during construction work relative to the conventional vest.
- Participants reported less total fatigue, lethargy, and discomfort after wearing the Aluminet vest relative to after wearing the conventional vest; however, these effects were not statistically significant.
- Despite consultation with contractors and workers during study planning, both employers and workers were concerned that the aluminet vests posed a potential hazard because their color differed from conventional high-visibility garments. Employers were also concerned about potential health effects related to the use of core temperature pills. Innovative technologies such as core temperature pills may be able to distinguish subtle effects, suggesting a need for additional research regarding user acceptance of some personal monitoring devices.
- Participants were generally interested in the use of wearable direct measurement technologies (e.g., heart rate monitors, surface temperature sensors, etc.) to collect relevant exposure information. Wearable sensor technologies may hold promise for future work in the construction sector.

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Read the report:

<https://www.cpwr.com/sites/default/files/publications/Schall-heat-reflecting-vest.pdf>

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