Its a heavy load to bear.

A review of *Effects of Training on Physical Performance Wearing Personal Protective Equipment.* ***Original article written by:*** DP Swain et al. Military Medicine 2010 175:664-70.

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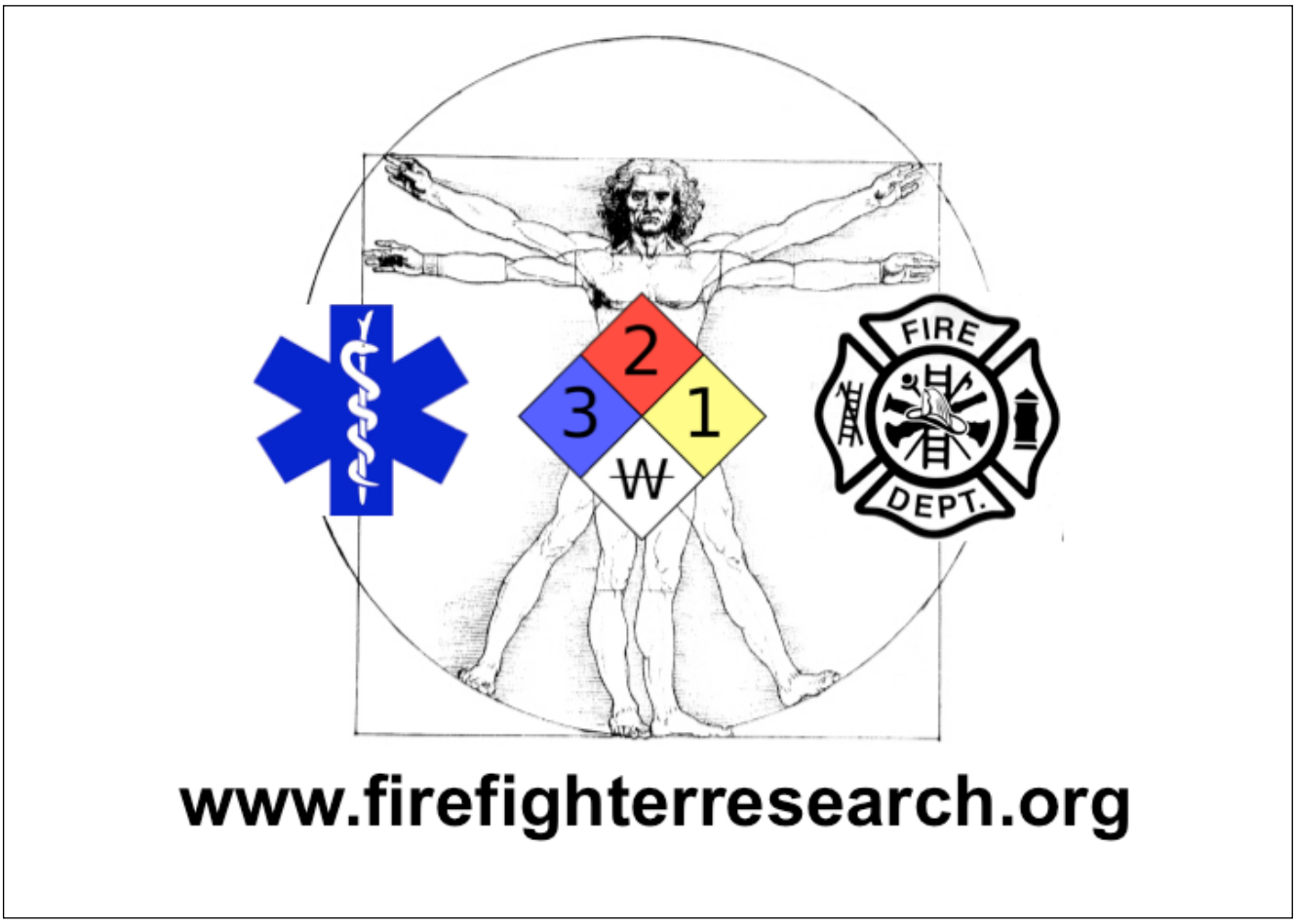
The research summary was crafted by Luke Prince, ERHPL intern.



Introduction

Personal protective equipment (PPE) is common both in civilian and military duties. In the military PPE consists of primarily helmet and thoracic protection (vest with ceramic plates) weighing around 10 kg. Firefighter PPE includes helmet, turnout gear, and self contained breathing apparatus, the combination of which can weigh as much as 27 kg. Weighted vests used by athletes have been shown to improve physical conditioning and performance and even improve bone density of when used by the elderly. However, less is known about the effects of weighted vest exercise among users of PPE.

What the study did

A group of researchers from Old Dominion University looked at the effect of wearing weighted vests during military style physical training. The study recruited 43 young, healthy subjects (22 males, 21 females) who took part in six weeks of physical training (four days per week) that was based on U.S. Marine Corps recruit training. Testing, before and after training, consisted of push-ups, pull-ups, crunches, running, stair climbing, and an agility drill. All of these tests were performed while wearing a 10 kg vest to simulate exertion in body armor.

Half of the subjects exercised during the six-week training interval while wearing a weighted vest and the other half did not. For the first two weeks of training, vests weighed 5 kg and the remaining weeks they were 10 kg.

What the study reported

Both groups improved performance and reduced body fat following the six weeks of training. The improvements in the uphill treadmill performance (6.8% in the vest group vs. 3.0% in the control group) aerobic capacity (10.7% vs. 6.8%) appeared to favor the weighted vest group did not reach statistical significance.

What it means for the fire service

Six weeks of physical training improved performance and reduced body fat in this group of young, healthy adults participating in military style physical training. Addition of a weighted vest did not improve performance to a greater extent than in the subjects who did not wear the vest.

It is possible that the training period was not long enough or that the vest worn during training was not heavy enough to induce additional training benefits in this scenario. We are not aware of similar data for firefighters and cannot make a recommendation about weighted vest training at this time. A 10 kg vest will not adequately simulate the load of turnout gear and SCBA nor will it simulate the changes in center of gravity that will be caused by the SCBA cylinder. A weighted vest will put additional strain on your joints if it is worn during high intensity exercise and may not be advisable for less fit or heavier individuals.