Microclimate cooling effect on tension/anxiety and fatigue in field and laboratory settings

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■Description

Crew members aboard U.S. Navy ships in the Persian Gulf work under high-heat and high-humidity conditions. Exposure to heat has been shown to affect sleep quality, and to cause tension, anxiety, and fatigue, and to decrease performance capabilities and cognitive operations. Because many ship spaces cannot be air conditioned, a microclimate cooling system was tested as an alternative. Objectives of this study were to measure and compare levels of tension/anxiety and fatigue in subjects during watch-standing sessions, with and without a cooling ice vest. There was a statistically significant effect on tension/anxiety; subjects had an increase in tension/anxiety from pre-watch to post-watch in the no-ice vest condition, but tension/anxiety decreased during the watch when an ice vest was worn. The change in fatigue during watch-standing with the ice vest and without was not statistically significant. A subsequent laboratory replication of this Persian Gulf field study corroborated these results. The majority of the subjects in both the field and laboratory portions of this study reported that the ice vest was helpful during watch-standing, that it did not interfere with their ability to do their job, and that they would recommend future use of the ice vest. The results suggest that a passive microclimate cooling system (ice vest) would be beneficial for the mood and comfort of naval personnel deployed in high heat/humidity regions.

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