



**RELATIONSHIPS BETWEEN PHYSICAL TEXTILE PROPERTIES AND
PHYSIOLOGICAL AND SUBJECTIVE COMFORT MEASURES DURING HUMAN
WEAR TRIALS OF CHEMICAL BIOLOGICAL GARMENT SYSTEMS**

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A two-phase design was used to investigate the ability of textile properties to predict the comfort of chemical/biological (CB) protective clothing. In phase I differences in various forms of dry and evaporative heat transfer, moisture vapour transfer, moisture absorption, and air permeability among CB fabric systems were determined.

In phase II, data from wear trials of CB garments, comprising physiological and subjective comfort measures, were supplied by the Department of National Defence. Pearson's correlation analyses determined relationships between textile properties and wear-trial comfort measures. Multiple linear regressions were used to determine which textile properties would best predict human responses.

Differences in physiological and subjective measures reflected differences in textile properties. Regression models indicate that different physical textile properties determine different physiological measures at different exercise levels. However, the same physical properties determine corresponding subjective comfort measures for two different physical effort levels. Regression models suggest it may be necessary to measure only one or two textile properties to predict comfort.