

Climate and Suitable Clothing

R Tamas

ABSTRACT

Climate may be described as refined weather. The meteorologist notes the day-to-day variations of the weather components, extracts the principal frequencies which then describe the seasons, and once the average values have been derived over long periods of time, there emerges the concept of climate. Advances in preventive and curative medicine are such that man is left virtually with only his two oldest enemies to combat: his fellow men and the environment and he will be able to give better attention to the former if the latter is neutralised by the supply of suitable clothing designed to keep him comfortable.

Keywords: Climate, suitable clothing, thermal insulation

El Clima y Ropa Adecuada

R Tamas

RESUMEN

El clima puede describirse como el tiempo refinado. El meteorólogo ha observado día tras día las variaciones de los componentes del tiempo, ha extraído las frecuencias principales que entonces describen las estaciones, y una vez que los valores promedios han sido derivados durante un largo período de tiempo, surge el concepto de clima. Los adelantos en la medicina preventiva y curativa son tales que el ser humano se ha quedado virtualmente enfrentando sólo a sus dos enemigos más viejos: sus prójimos y el medio ambiente. Podrá entonces prestar más atención a los primeros, si logra neutralizar el segundo mediante el suministro de ropa convenientemente diseñada que le provea confort.

Palabras claves: Clima, ropa adecuada, aislamiento térmico

West Indian Med J 2010; 59 (5): 581

INTRODUCTION

The higher organisms have been emancipated from changes in the environment by the constancy of the 'milieu intérieur' described by Claude Bernard in 1878. Man has achieved this by providing himself with suitable clothing and shelter. Clothing thermal insulation and moisture vapour resistance are two most important parameters in the thermal environmental engineering based on functional clothing design and end use of clothing ensembles. There are certain intrinsic

properties, such as garment(s) style and fitting, which are affected by body posture, body motion and environmental conditions. The components of climate that are of importance, both in and out of doors, in consideration of suitable clothing are air temperature, humidity, solar radiation and air movement. Precipitation and cloud cover are additional factors which merit attention outdoors. Meteorologists, unfortunately, do not use all these components when classifying climates, and the military services and physiologists have evolved their own classification – hot/dry, hot, wet, temperate, cold/wet, cold/dry and high altitude.

There is a theoretical function of the personal protective clothing (PPC) to protect the skin from mechanical and biological injury. The staff chief of the Hungarian 2nd Royal

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Army on the 9th January 1943 in Russia lamented the lack of adequate underwear for the army and the fact that heavier baize dresses could not be exchanged for more comfortable summer dress.

In the desert, with its high diurnal temperatures and nocturnal cold, evaporative cooling in the daytime is reduced by load-carriage and the requirement to protect the men's skin from the thorns, terrain, dust and radiant energy.

Similarly in the humid jungle, evaporative and convective clothing are jeopardized by load carriage and clothing protective against plants, insects, leeches and the like. Cold weather clothing calls for windproof outer garments to prevent heat loss by convection, of durable material to minimize further heat escaping through tears and rents, and permeability to water vapour so that insensible perspiration may escape without condensing in the clothing. The cold/wet environment, however, presents the greatest problem of all, and has caused perhaps more climatic casualties than the rest put together. The problem is that of keeping the suitable clothing free of moisture from both external and internal sources.

The preservation of thermal balance in the tropics can only be achieved at the expense of the effective role of the soldier, by decreasing his metabolic heat production. Increasing wind with a low or falling air temperature in a cold climate will sooner or later affect the mobile soldier's thermal balance to the extent that he must seek shelter, if he is not to become a casualty.

Thermal insulation and moisture vapour resistance of clothing are two important clothing properties with respect to thermal comfort. The accurate determination of these two

clothing properties is crucial to the selection of suitable clothing for different uses, functional clothing design and thermal environmental engineering. Although these two properties can be measured by tests on human subjects or using sweating manikins.

CONCLUSION

In many jobs, workers are required to use suitable personal protective clothing to prevent harmful exposures to physical and chemical hazards. Heat and mass transfer and its interaction in the clothing system are very complex processes. In order to predict or achieve the optimum performance with regards to clothing, thermal comfort, knowledge of the effects of body motion and environmental parameters, especially wind velocity and walking speed are essential.

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