



[Exposure to cold and the symptoms thereof].

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Humans

Hypothermia

Diagnosis

Male

Middle Aged

Risk assessment

Sex Distribution

Survival Rate

Time Factors

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Impacts of cold climate on human heat balance, performance and health in circumpolar areas

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Abstract: In circumpolar areas the climate remains cool or thermoneutral during the majority of the days of the year spite of global warming. Therefore, health consequences related to cold exposure represent also in the future the majority of climate-related adverse health effects. Hot summers may be an exception. At ambient temperatures below +10 - +12 degrees C, humans experience cold stress of varying degree. Man can compensate a 10 degrees C change in ambient temperature by changing metabolic heat production by 30-40 W m⁻² or by wearing an additional/taking off ca. 0.4 clo units (corresponding to one thick clothing layer). Cold ambient temperature may be a risk for human health and cause varying levels of performance limitations. The impacts of cold exposure on health and wellbeing cause a burden to many societies in terms of lowered productivity and higher costs related to health care systems as well as public health planning and management. In order to provide preventive and protective public health actions for cold-induced adverse health effects, it is important to recognize cold related injuries, illnesses and symptoms and their turn-up temperatures, and to identify the most at-risk population subgroups and factors that increase or decrease the health risks posed by cold ambient temperatures. The majority of cold-related harmful health impacts can be prevented or managed by correct preventive and protective actions. Rapid unpredictable changes are more difficult to compensate because of lack of experience (affecting attitude and skills), preparedness (vehicles, garments, supplies, logistics etc.) and/or acclimatization.

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