



Winter Is Here

Is your wardrobe suitable?

BY BILL SIURU

Hypothermia, the gradual loss of heat from the body's core, is the number one winter killer. Art Seely, a world renowned winter survival expert who operates the Snow Survival School in Littleton, Colorado, said adequate clothing used properly is critical to preventing hypothermia.

Contrary to popular belief, it does not take extremely cold temperatures to cause hypothermia. Most hypothermia victims die when outdoor temperatures are between 30-50° F. All it takes is a little moisture and a blowing wind to turn even seeming mild temperatures into killers.

The first and most reliable symptom is hard shivering - which starts when the body's core has lost as little as 1-2° F. Shivering is the only symptom of hypothermia that victims them-

selves can easily recognize. Since the brain becomes less reliable as hypothermia progresses, you cannot be sure that you will be mentally alert enough to recognize later symptoms.

In the time it takes to write a traffic ticket, body core temperature can drop to the point that the ability to think is impaired. Do not take any chances; stop and re-warm immediately by any means available. If outside and exposed to high winds, seek shelter immediately. For example, get back into your warm vehicle.

One very important fact about shivering - as hypothermia worsens, shivering will stop. Thus there is a life or death question: did shivering stop because the body core warmed up or because it cooled further?

A symptom of severe hypothermia is called paradoxical heating when the brain mistakenly believes the body too

hot even though the core is dangerously cold. Victims of paradoxical heating often remove their clothing worsening their hypothermia and almost always assuring death.

While for mild hypothermia, the treatment is immediate re-warming, victims of advanced hypothermia, must be handled very gently and only re-warmed slowly and correctly. Sudden re-warming of a victim of a serious hypothermia can kill them by causing the heart to stop beating effectively. This results from a sudden rush of the cold blood trapped in extremities back to the heart to trigger ventricular fibrillation, a fatal heart irregularity.

The key to proper re-warming is slow and gentle re-warming of the head, neck and torso without re-warming the extremities. Most experts say the safest method in the field is to remove cold or wet clothing or to place

the victim in a sleeping bag and then transport him promptly to the hospital. In addition to avoiding any sudden re-warming of the victim also avoid any rough handling or jarring because it can cause ventricular fibrillation and death as well.

It is also a good idea to give warm, sweet fluid to the victim if he or she can drink it without assistance. But this is not critical to recovery and should never delay transportation to a hospital.

SYMPTOMS OF ADVANCED HYPOTHERMIA

- Poor muscular coordination
- Stiff muscles in extremities
- Confusion or apathy
- Pulse slows
- Respiration slows
- Pupils become slow to react to light
- Blood pressure drops
- Unconsciousness

Proper Clothing Can Prevent Hypothermia

Proper protective clothing does not have to be fancy or expensive. The key is that it consist of three layers - Inner, Insulating and Outer.

The *Inner Layer* or underwear worn closest to the skin must be able to "wick" perspiration away from the skin. The most commonly used material is polypropylene. Avoid cotton because damp cotton can cause more body heat loss than if no underwear is worn. The inner layer should be relatively thin and light as well as having an open or zippered neck to prevent the build up of too much heat when doing exerting tasks. Where OSHA precludes synthetic fabrics, use silk, which, though somewhat more expensive, is an acceptable substitute.

The middle *Insulating Layer* holds the body's warmth using trapped, still air. Wool, one of the better insulating materials, holds air among its many twisted and resilient fibers. Though somewhat heavy, it is a good choice if OSHA does not allow synthetic fibers. While down or feathers trap air in the

spaces between the feathers, down is not suitable because it can lose up to 98% of its insulating properties when it gets wet. Synthetic insulating materials like Qualofill, Holofill and Duofill traps air among the fibers as well as in the core of each fiber by having long hollow tubes of air built into each fiber strand.

The *Outer Layer* protects the other two layers from wind and rain while letting perspiration escape. Treated fabrics, such as Gore Tex, will keep external moisture out in all but the wettest weather. Nomex will work, but it is expensive - and it will shrink badly around the wearer when exposed to high heat. Outer layer garments must ventilate to prevent heat and moisture buildup when doing heavy labor. Jackets, and ideally the pants, should have external zippers, so they can be opened to provide critical ventilation.


Proper Use Is Critical

Clean garments insulate better than dirty ones. However, try to soil as little as possible, as repeated washings will reduce their performance. Follow all of the cleaning instructions on the garment's tag. When cleaning or drying outer-layer garments, always turn inside out to protect the water-resistant properties.

Open or ventilate all clothing layers when performing tasks requiring heavy exertion. A tight fit reduces blood circulation. The use of a tight elastic material for cuffs at ankles and wrists reduce blood flow to the hand or foot which can make frostbite much more likely. Velcro closures are the preferred method of keeping cold outside air away from wrists and ankles.

Keep clothing dry since all winter clothing loses some of its effectiveness when damp or wet. Cotton and down lose almost all of their insulating abilities while synthetic fabrics such as Holofill and Qualofill may lose as little as 2-5%. L&O

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