



Hypothermia: Killer of the Unprepared



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❄️ **Hypothermia** = low (hypo-) temperature (-therm-) condition (-ia).

❄️ Hypothermia occurs when you get chilled, not just your skin and muscles, but **deep inside**.

❄️ **Heat Balance/Thermal Energy:**

❄️ Your body produces heat continuously by “burning” food. Food is important in keeping you warm.

❄️ Your heat production and heat loss must balance, to keep your body temperature in the range where cell chemistry works properly.

❄️ Use clothing and knowledge to keep your body core temperature normal, even in hypothermia weather.

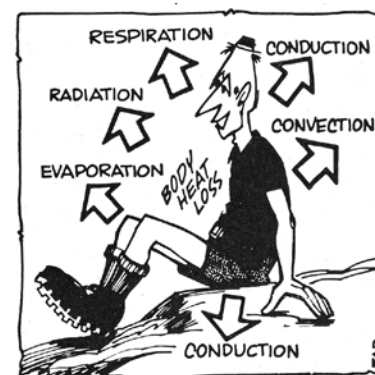
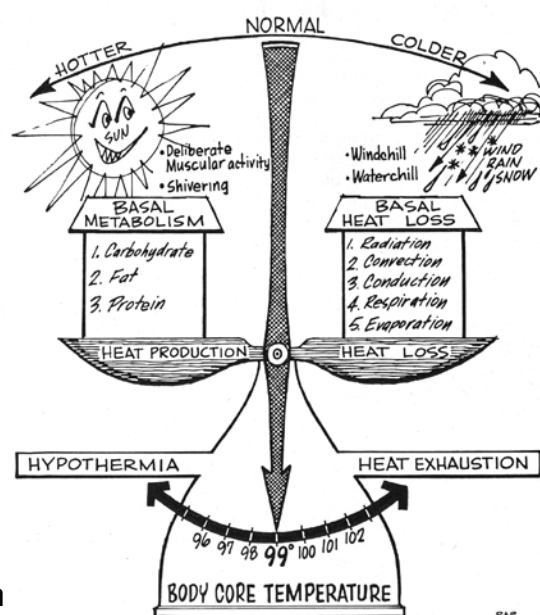
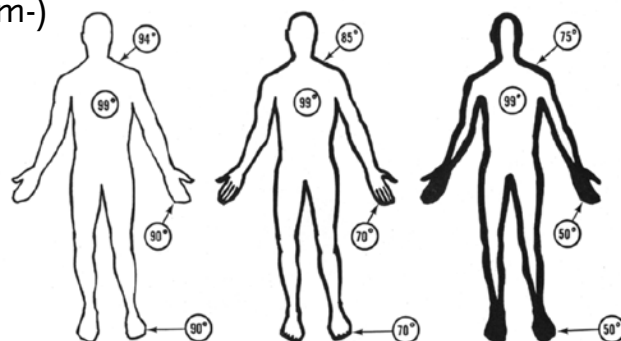
❄️ You **lose heat** from your body several ways:

❄️ **Cold Temperature: radiation** (like heat radiating from a hot stove) and **conduction** (like sitting on a cold rock).

❄️ **Windchill: convection**, as cold air blows by you.

❄️ **Wetchill:** you lose heat when you are wet: by **conduction** into and through the cold water in your clothes, and by **evaporation** as water on your skin turns to a gas.

❄️ Hypothermia is a particular problem at temperatures around freezing ($32^{\circ}\text{F}=0^{\circ}\text{C}$) with wind and rain: **cold temperature**,



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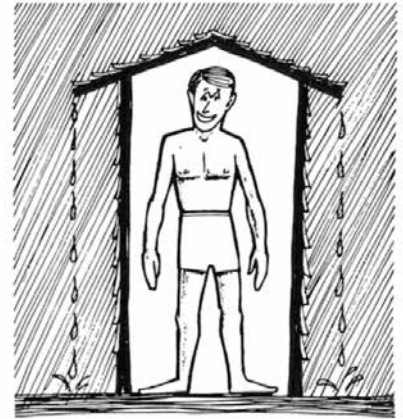
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windchill, and wetchill combined. This is called **hypothermia weather**, because so many underestimate it. Even in the summer, sudden storms with wind and rain can cause hypothermia at temperatures as warm as 60°F=16°C.

❄ In bad weather, clothing is your **life-support system**:

- ❄ **Waterproof** raingear protects you (somewhat) from wetchill.
- ❄ But even in truly waterproof raingear you will get wet. We all perspire, and clothes get wet from condensation, even in “waterproof-breathable” parkas.
- ❄ **Wool** and some **synthetics** (like polyester underwear and fleece) retain some warmth when wet. Even so-called “waterproof” down parkas may be flat and cold when wet. Cotton – jeans and flannel shirts – are effectively useless as insulation when wet.



In cold-wet conditions, cotton kills!

- ❄ How many times faster does water conduct heat than dry air? **240x!** If your clothes get soaking wet, for instance after falling in a stream, wring them out and put them back on.
- ❄ So, when going out, remember the **Three Ws**:

Waterproof Clothing Warm-when-wet Clothing
Windproof Clothing

- ❄ Always carry **two large plastic leaf bags**. These are light, cheap, and provide quick protection against wind and rain. Just stick them in your pocket.
- ❄ With what you have learned here, and with some simple and inexpensive clothing, you can be comfortable even in hypothermia weather.

