

Staying Warm by Wearing the Right Layers of Clothing

Why do I get Cold?

It seems logical that the thicker the coat you wear, the warmer you will be, but that's not entirely true. There are three main reasons why you get cold:

1) Evaporation - The body cools itself by using its own heat to evaporate sweat. Thus, if you are active outside (even walking or biking to class) or you enter a warm vehicle or building, your body heats up and sweats to cool itself down. The result: sweating can make you feel much colder than when you first went outside!

2) Conduction - Cold surfaces can conduct heat away from your body. You know your fingers will get colder touching ice or metal than they will just touching calm air at the same temperature. Did you know water conducts heat away from the body about **25 times faster than air**? Therefore, getting sweat off your skin and keeping rain, snow, and sleet out are essential to staying warm!

3) Convection - Exposing your skin to the wind can cause your body to lose heat up to **2.5 times faster** than if no air circulated around your body. So, look for windproof materials and good closures at the wrists and neck (as well as flaps over zippers) to prevent airflow.

Why not Cotton?

I know cotton feels nice next to the skin, but it absorbs and retains moisture, so it should NOT be worn next to the skin in winter or as the outer layer. It is also a poor insulator when wet, so that eliminates its usefulness in the last remaining layer.

Why wear Layers?

FUNCTION - While some gloves and jackets may have two-layer function, I have yet to find a single item that can satisfy all of the requirements below all the time.

FLEXIBILITY - It allows you to adjust to changing activity levels and changing weather (it is 20°C / 68°F as I write this, but snow is predicted tomorrow).

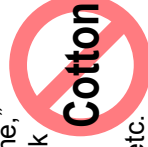
1) Base Layer

Purpose: This **MOST IMPORTANT** Layer wicks moisture away from your skin.

Notes: Should fit snugly next to your body, but not restrict movement (usually needs to be thin).

Materials: Polyester and Polypropylene and brand names like "Capilene," "Thermostat," and "Coolmax" are great even for active sports. Silk is ok if you don't sweat too much. Don't wear COTTON next to your skin!

Clothing: Long underwear tops & bottoms are essential, thin glove & sock liners are helpful when it is really cold, thin hats during sports, etc.



Normal Clothing

Should be worn OVER the base layer. Avoid wearing cotton clothing (like most sweatshirts, t-shirts, jeans, and white athletic socks) if at all possible! You will be warmer skipping this layer entirely than wearing cotton!

2) Insulating Layer

Purpose: It provides thermal insulation while still allowing moisture to escape from your skin.

Notes: This is the layer you should adjust for changing conditions (not the shell).

So, 0, 1, or 2 insulating layers may be worn.

Materials: Wool, fleece, acrylic, and brand names like "Polartec" are breathable plus they are good insulators even when wet.

Thicker polyester & polypropylene are good too. Try to avoid cotton.

Clothing: Sweaters or cloth jackets and socks are critical. On really cold

days add pants, extra top layers, and especially a hat, headband, face mask or balaclava since most of your body heat escapes through your head!



3) Shell Layer

Purpose: It blocks wind & water while allowing perspiration to escape.

Notes: Make sure items fit snugly around neck, wrists, and ankles.

Materials: "Windproof, Waterproof, Breathable" fabrics like "Gore-Tex" with taped seams for full waterproofing are best. "Water-resistant" or "water-repellant" fabrics will not always keep you dry. Materials like PVC, "Tyvek," and neoprene usually aren't breathable so you'll be wet from sweat.

Clothing: Jacket with hood, pants, gloves, and hiking boots are critical.



What do I Need?

Key items to get first are:

Shell Jacket - a good windproof, waterproof, breathable one (rarely at Wal-Mart). Most cost \$100-\$400, so anything that fits well and meets all three criteria under \$100 is good.

2 Long Underwear Tops - (\$20 each) **2 pairs of Socks** - wool blend, "SmartWool," etc. (\$7-\$12 per pair).

Hiking Boots - Waterproof (as low as \$30 at Wal-Mart), but preferably also Breathable (\$80 and up elsewhere).

Fleece Jacket or Pullover - Polartec 200 is warmer than 100. Look for sales on these anywhere (\$30-\$80).

Hat or Scarf - Wal-mart has several at \$2-\$9 (keep one in your backpack).

Gloves or Mittens - Windproof materials are critical. Mittens are warmer than gloves. Upgrade to better waterproof and breathable gloves or mittens if you bicycle (\$7-\$30).

Face Mask - If you ride a bike in winter, a Seirus fleece-lined neoprene face mask & scarf (\$20 online) is key.

Where can I Buy?

Local Stores:

Some Discount Online Sites:

www.sierratradingpost.com

www.campmor.com

www.Overstock.com

www.rei-outlet.com