

Technical Clothing Redux

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What is technical clothing, and why should I care?

Technical clothing is designed to keep the wearer dry and at a comfortable temperature regardless of weather conditions. To illustrate the benefits of technical clothing, consider the standard cotton t-shirt that you don when doing weekend yard work. It feels great against the skin when you put it on, but as soon as the fabric becomes damp and cools, it feels clammy and uncomfortable. This can even contribute to hypothermia in cold conditions. In comparison, a shirt made from a synthetic fabric like polyester will wick moisture away from the skin to the surface of the fabric where it evaporates, keeping you dry and comfortable.



Gore-Tex and similar fabrics containing waterproof membranes are common in technical outerwear.

What's the big deal with layering?

Technical clothing is at its most effective when combined in layers. Layering simply means to wear a number of garments in lieu of a single heavy garment. This strategy provides flexibility, as layers can be added or removed to accommodate a range of temperatures. In contrast, a heavy coat is comfortable only while the temperature is cold. As the sun beats down or as your activity level increases, it's easy to become overly warm. Layering is used for both the upper and lower body, so don't neglect your legs.

Generally speaking, a layering system has three components: a **base layer**, an **insulating layer**, and an **outer layer**, though you may be able to skip one or two of them depending on the weather conditions.

Base Layer

- **Description:** This garment lies directly against the skin where it wicks moisture outward, toward the surface of the fabric. The base layer is often tailored to hug the body – this facilitates wicking. Lightweight fabrics are perfect for cool days in which the wearer is active, while heavier base layers work best on very cold days when the wearer doesn't move around much (such as watching a December football game at Soldier Field).

- **Materials:** Synthetic fabrics like polyester and nylon are popular base layers due to their wicking abilities and low cost, but over the last several years, Merino wool products have emerged as popular choices. Wool, unlike its synthetic counterparts, remains warm against the skin when wet, although it does take a long time to dry. Unlike traditional wool, the extremely fine fibers of Merino wool are less likely to feel scratchy against the skin.



Ibex Outdoor Clothing (ibex.com) and Smartwool (smartwool.com) are two technical clothing makers who use natural fibers like Merino wool in their technical clothing.

Insulating layer

- **Description:** Most of the warmth in a layering system comes from this item, which can come in the form of a sweater, pullover, vest or jacket. If the temperature outside is mild, you may skip the insulating layer altogether. For slightly colder temperatures, an insulating vest may be ideal, but in frigid conditions, an insulated jacket or pullover is best.

Materials: The most popular insulating layer material these days is synthetic fleece. This fuzzy and lightweight polyester material was invented over 25 years ago by Massachusetts-based Malden Mills, and has undergone considerable refinement over the years. A fleece jacket can serve as an outer layer on calm days, but consider one made with a wind-resistant fabric when it's really blowing outside.

These products incorporate breeze-blocking membranes, making them perfect for spring or fall walks along the lake. For cold conditions, insulating materials like goose down and high-loft polyester fiber are best. Each is very warm, but down can't be beat for warmth-to-weight ratio. However, unlike polyester insulation, down loses most of its insulating effect when wet.

Outer layer

- **Description:** The outer layer, sometimes called a shell, is a thin jacket designed to keep wind and water out while remaining breathable (i.e., moist air from within the jacket escapes through the fabric). There are two types of outer layers:

Hard Shells: Hard shells excel at blocking exterior wind and rain, while allowing perspiration to escape through the fabric as vapor. If heavy precipitation is in the forecast, a hard shell is the best choice. Unfortunately, even the most breathable of hard shells can become uncomfortable when perspiration condenses on the inner surface of the jacket. Some manufacturers add a napped texture or bonded lining to the inside of the shell to minimize clamminess.

Hard Shell Materials:

Hard shells are made of two or three thin layers of material laminated together, one of which is a semi-permeable membrane. The best-known hard shell laminate is Gore-Tex®, but a number of competitors have emerged, such as, eVent™, Conduit™ and HyVent™. Whether one material is better than others is debated at length by outdoor enthusiasts.

Soft Shells: Soft shells are more comfortable to wear than hard shells because they breathe exceptionally well. Water beads on the surface of soft shells in light to moderate showers, but the fabric inevitably becomes saturated in a downpour. In cool conditions, soft shells work well without an insulating layer. This is not necessarily true of hard shells.

Soft Shell Materials:

There are many high-tech soft shell fabrics available, and it's difficult to keep track of which companies use which fabrics. The Backpacking Light Gear forum is a great place to learn more from those who really put their clothing to the test.

(http://www.backpackinglight.com/cgi-bin/backpackinglight/forums/display_forum.html?forum=18)

What should I look for when buying technical clothing?

- Fit:** Make sure the garment's fit is appropriate for its use. Don't buy a form-fitting hard shell for winter (no room for layering) or a baggy base layer (perspiration won't wick effectively).
- Ventilation:** If you will be active while wearing a layer, make sure it breathes well or that it can zip open to allow airflow. Specifically, look for pit zips at the underarm of jackets and outer seam zips on pants; each type facilitates air movement.
- Waterproof zippers and sealed seams:** If a shell garment is designed to be waterproof, the manufacturer should take these precautions to keep water from entering through zippers or seams.
- Durable water repellent (DWR) coating:** Many technical insulating layers and soft shells gain their water resistance through DWR, a fabric coating which makes water bead on the surface.
- Zip-in system compatibility:** Several companies offer shells and insulating layers designed to work in harmony. The insulating layer (perhaps a fleece jacket) zips into the shell. This effectively turns the two layers into a single, insulated jacket. By purchasing an assortment of zip-in shells and insulating layers, you gain great flexibility. Because zip-in compatibility is not a universal standard, check for compatibility before buying.



The North Face zip-in system illustrated.

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