

# Layering

## What is layering?

Several layers of lightweight, insulating, moisture managing clothing are more effective and more versatile for maintaining body temperature during outdoor activities than a single layer of heavy insulation. Layering simply gives you greater control. When the temperature or your level of exertion rises and your body starts to heat up, you can remove insulation one layer at a time until you are comfortable. Similarly, when the temperature or your activity level drops, you can add layers of insulation to stay warm without becoming overheated.

## External Layer

The external shell layer protects you from wind, rain and snow. Properly designed, it holds in your body heat while allowing water vapor to escape. If wind or water is allowed to penetrate to the inner layers, you begin to cool off. Without proper ventilation, perspiration can't evaporate. Instead, it condenses on the inside of your shell. The external layer should be waterproof, breathable and roomy, so that it will fit over top of the other layers.

## Middle Layer

The middle layer serves the dual function of keeping heat in while encouraging perspiration to escape. Lightweight garments like micro fleece, wind bloc fleece, and stretch fleece insulate by trapping a layer of warm air on the inside. At the same time they have been made to transport perspiration to the outside where it can more quickly evaporate. In addition, many items today are made with technically advanced synthetic fabric, which do not absorb water. As a result, they dry out and are able to maintain their insulating ability even when wet. Since the entire purpose of the layering system is to allow you to remove layers as conditions warrant, the middle layer often ends up doubling as the external layer for periods of time. So a breathable middle layer with extra protection against wind is advised.

## Base Layer

The base layer is the layer next to your skin. This is where effective moisture management is

critical. It is recommended to use performance underwear for all outdoor activities in all conditions. Performance underwear serves two basic purposes: it traps a layer of warm air next to your skin, and it wicks away the perspiration your body produces during physical activity. This layer is usually found in different weights: lightweight for highly aerobic sports (running, strenuous hiking), mid weight for moderately active sports, and expedition weight for severe cold and more passive pursuits. Silk is a natural alternative to synthetic fabrics. It is nature's best insulator, offering an excellent warmth to weight ratio. Technologically altered silk enhances the wicking and dispersion of moisture, so it dries more quickly than ordinary silk underwear.



## What about Pants?

The rules of layering for comfort apply above the waist as well as below. Although, in general, your legs require less insulation than your torso, moisture management is still a critical issue. In hot weather, performance underwear and some quick drying shorts are best. In mild to cool conditions, performance underwear and micro fleece pants worn beneath wind proof or waterproof/breathable over pants provide an excellent combination of insulation, wicking and protection from the elements. The specific weight and type of shell you will need depends on your intended activity and the conditions in which you will be pursuing it.

## Don't forget about your Head!

Hats. The head is the primary source of heat loss. Wear a hat made of fleece or lined with a moisture management fabric such as polypropylene.