

Winter Survival Clothing System

How to clothe yourself for successful wilderness survival

The most workable outdoor clothing method ever devised is known as the “3-layer system”. Used by mountaineers, wilderness explorers, and outdoorsmen for centuries, the three layer clothing system is the proven way to keep you functioning at peak efficiency no matter what the weather.

Dressing for Wilderness Survival

One of the most important survival skills you can acquire is learning how to properly dress yourself. Once you learn the principles behind staying warm and dry using layers of clothing to your advantage, you are well on your way toward comfortably surviving in any environment.

Layering your clothing allows you to mix and match the items of your wardrobe in ways that best protect your body from the elements while simultaneously regulating your body temperature.

Typical survival situations require your clothing protect you from

- Wind
- Becoming wet from rain, fog, dew, snow, or sweat.
- Cold or excessive heat
- The sun

Regulating Body Temperature is Important



Base Layer

The main function of the base layer is to wick moisture away from your body.

Here I am wearing a base layer consisting of a Thinsulate hat, capilene shirt, Under Armour bottom, and polypropylene socks

using your clothing layer system.

Each layer of clothing in the three layer system serves a special function but can be removed as conditions warrant. This ability to mix and match according to conditions for optimal comfort and body heat regulation is key to the success of the three layer clothing system.

For example, heavy exertion even in extreme cold can lead to overheating and excessive sweating that soaks your clothing. Wet clothing has a greatly reduced heat retaining efficiency. Once your high level of exertion ceases, your body will begin to cool down but your wet clothing may no longer have sufficient insulation properties to keep you warm.

By removing some of your clothing layers when you feel yourself to be too warm, and adding layers as you cool, you can best regulate your body temperature for comfort and safety.

Experienced outdoorsmen in cold weather will often wear relatively little clothing while exerting themselves. They will also pace themselves in a way that limits the amount they sweat so that the fabrics they are wearing do not become wet. Experience has taught them to keep their bodies a little on the cool side to avoid perspiration.

Novices in the same conditions will often wear all their clothing and sweat profusely because of it. Inexperienced, they do not consider the amount of heat a moving body generates or the dangers of sweating; they are the first to become dehydrated, the first to become exhausted, wet, chilled and even hypothermic.

Remember the Survival Topics mnemonic: *“Cool and Dry Stays Alive”*. Keep your body on the cool side and limit the amount you sweat by regulating your body temperature

The Survival Clothing Layers

Now that we have covered some of the basic reasons for the 3-layer clothing system, we can closely examine the makeup of its individual layers.

Base Layer

The base layer of clothing is also known as the inner layer. This is the clothing you wear directly against your skin.

The main purpose of the base layer is to wick moisture away from your body and shunt it toward the outer layers where it will eventually evaporate away. In order to do this most efficiently, the base layer should fit snugly against your skin so that it is in contact with moisture as soon as it exits your body.



Middle Layer

The main function of the middle layer is to trap body heat.

Over the base layer I am wearing a wool hat,

A secondary purpose of the inner base layer is to provide some insulation against the cold. Though this is not its primary use, in extremely cold environments the base layer assists the other layers in keeping you warm.

fleece jacket, wool pants, wool socks, and wool mittens

Base layer materials should absorb less than one-percent of their weight in moisture so that they dry quickly. Modern synthetic materials used for base layers include polypropylene and capiline while silk can be utilized by those who prefer to go natural. These fabrics hold so little water they will often feel nearly dry even after being dunked in water.

Other inner layer materials are composed of composites of polyester and wool. These types of materials are generally used in base layers where a higher degree of insulation in addition to moisture wicking action is desired.

There are several thicknesses of base layers to consider, depending upon the conditions you expect to encounter.

Lightweight base layers are used for periods of intense activity where the ability to stay cool and wick moisture away from your body is important.

Midweight base layers are a little thicker and heavier. They continue to wick moisture away from your body but also provide more insulation than lighter weight materials.

Heavyweight base layers are used in extremely cold conditions.

In practice, I prefer to bring one lightweight and one mid weight base layer instead of a single thicker inner garment. This gives me a greater range of comfort than a single heavyweight base layer can provide since I can wear either one or both as needed.

Mid Layer

The mid or middle layer consists of one or more garments worn over your moisture wicking base layer.

The main purpose of the mid layer is insulative. It is designed to retain body heat by creating dead air space around your body. This still air is what decreases the exchange of heat between your body and the cold environment, in effect insulating you against the cold.

In addition to providing the greater part of insulation in the three layer clothing system, the middle layer should also provide a wicking action to carry moisture it receives from the base layer. This moisture is shunted by the mid layer to the outer layer and then out into the environment.

The middle layer of clothing consists of one or more garments made from materials such as fleece, polyester, down, and wool. I prefer to avoid down because it loses nearly all its value as insulation should it become wet – a potential disaster when you are in a very cold environment.



Outer Shell

The main function of the outer shell is to repel water and wind.

My outer shell consists of a hooded Gortex parka, nylon pants, rubber pack boots and leather overmitts

Wool has the great advantage of still being warm even when wet, though it is very slow to dry. Cotton should be avoided since it loses its insulative value when wet and is very difficult to dry.

Rather than have just one heavy garment serve as your middle layer, it is better to have several light to medium weight articles instead. This may include a fleece jacket, wool sweater, and synthetic vest. The advantages of this combination lay in the ability to mix and match as needed. For example, on a relatively warm day you could wear just the fleece jacket over your base layer. When it becomes cooler put on your wool sweater or vest over the fleece for added insulation against the cold.

Outer Layer

The outer layer is also referred to as the shell. The shell performs several very important functions:

- Repels water including rain, snow, fog and dew
- Protection from wind
- Removal of body moisture
- Shield against chafing, scrapes, and other damage

Proper selection of shell material is important. Modern fabrics such as Gortex are ideal since they both shed water and allow your body moisture to migrate through to your surroundings.

Often during high levels of activity the shell is not worn as the body generates enough heat to stay warm even in cold or windy conditions. Should it be raining, snowing, or very windy the shell may worn directly over the base layer in order to regulate a comfortable level of body heat while at the same time staying dry.

Survival Clothing System

Rather than have one heavy garment, survivors are better served by several lighter articles of clothing that can be mixed and matched according to the needs of environment and activity.

The layer system shown in the pictures will keep you comfortable during moderate activity in temperatures as low as -10° F (-23° C). Add a good wool sweater over the fleece coat and you're good to -25° (-32° C). Of course people have varying tolerances to the cold depending upon physical condition, genetics, and natural adaptation through continued exposure. But by simply adding garments to the mid layer you can survive extremely low temperatures.

In review, the primary function for each of the three clothing layers is:

The first layer wicks moisture away from your body.

The second layer traps body heat in order to keep you warm.

The third layer sheds water and wind.

The main culprit to avoid in any outdoor environment is sweating. Over heating and heavy sweating will compromise the ability of your clothing to keep you protected from the elements. In addition, the loss of sweat can adversely affect your physical condition.

The system of clothing you choose and your ability to use it to advantage is important for your survival. Optimum use of the three layer clothing system requires you to actively add and remove layers as needed in order to stay cool and stay dry. Remember: *"cool and dry stays alive"*.

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